



NORTHSTOWE PHASE 2 PLANNING APPLICATION

Health Impact Assessment

August 2014

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1 Introduction

1.1 Introduction

This Health Impact Assessment (HIA) has been prepared by Arup to support the planning application by the Homes and Communities Agency (HCA) 'the applicant' for Phase 2 of the proposed new town, Northstowe.

1.2 Description of development

Planning permission is sought for the development of Phase 2 of Northstowe with details of appearance, landscaping, layout, scale and access reserved (save for the matters submitted in respect of the Southern Access Road (West)) comprising:

- 1) Development of the main Phase 2 development area for up to 3,500 dwellings, two primary schools, the secondary school, the town centre including employment uses, formal and informal recreational space and landscaped areas, the eastern sports hub, the remainder of the western sports hub (to complete the provision delivered at Phase 1), the busway, a primary road to link to the southern access, construction haul route, engineering and infrastructure works; and
- 2) Construction of a highway link (Southern Access Road (West)) between the proposed new town of Northstowe and the B1050, improvements to the B1050, and associated landscaping and drainage.

For the purposes of the HIA, the application area is referred to as 'Northstowe Phase 2 development' and comprises: the Main Phase 2 development area; and Southern Access Road (West).

1.3 Aims and objectives of the HIA

The aim of this HIA is to ensure that the Northstowe, Phase 2 development maximises the potential for positive effects on health and wellbeing whilst minimising any negative effects.

1.4 Report Structure

This HIA Report includes

- Project description;
- Background to HIA;
- HIA methodology and scope; and
- Assessment of health outcomes and recommendations.

2 Background to health impact assessment

2.1 What is health impact assessment?

Consideration of health is an important aspect of any major policy programme or project within the UK. The purpose of an HIA is to assess the health consequences of a policy, programme or project and to use this information in the decision-making process to maximise the positive and minimise the negative health impacts of a proposal.

HIA is a multi-disciplinary activity that cuts across the traditional boundaries of health, public health, social sciences and environmental sciences.

The most commonly used definition of HIA is taken from the World Health Organisation (WHO) Gothenburg Consensus Paper '*.....a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population*'¹.

2.2 National and regional policy context

HIA is promoted at European level in Article 152 of the Amsterdam Treaty; and at UK level in the Government White Paper Saving Lives: Our Healthier Nation (1999).

The Government White Paper: Choosing Health – Making Healthy Choices Easier (2004) outlined the importance of routinely considering the impact of 'non-health' interventions on population health both before implementing policies (through HIAs, for example) and afterwards through evaluation.

The Government White Paper: Healthy Lives, Healthy People: Our strategy for public health in England (2010) does not identify a specific requirement for HIA, but its policies and guidance support this approach.

The National Planning Policy Framework (NPPF, 2012), makes reference to the links between local planning authorities and health organisations. The national policy suggests future development should be assessed for any expected changes and barriers to health and well-being. HIAs proactively seek to do just that, and therefore this policy can be noted in influencing the requirement to produce an HIA for new developments. The specific statement within the NPPF is within paragraph 171, addressing health and well-being, which is '*Local planning authorities should work with public health leads and health organisations to understand and take account of the health status and needs of the local population (such as for sports, recreation and places of worship), including*

¹ WHO European Centre for Health Policy. (1999). Health impact assessment: main concepts and suggested approach. Gothenburg consensus paper. WHO Regional Office for Europe.

expected future changes, and any information about relevant barriers to improving health and well-being.'

Since the revocation of the Regional Strategies in 2010 there are no appropriate regional policies to consider for the East of England.

The South Cambridgeshire Development Control Policies DPD (2007) outlines a key objective to 'ensure that major new developments create distinctive, sustainable and healthy environments to meet the needs of residents and users, and contribute towards the creation of vibrant, socially inclusive communities.' It also highlights the requirement for major developments to submit an HIA to demonstrate that the principles of sustainable development have been applied.

The Development Control Policies DPD will be superseded by the South Cambridgeshire Local Plan Proposed Submission (2013) when it comes into effect. The Local Plan states that '*New development will have a positive impact on the health and wellbeing of new and existing residents. Planning applications for developments of 20 or more dwellings or 1,000 m² or more floorspace will be accompanied by a Health Impact Assessment to demonstrate this.*'

South Cambridgeshire District Council has also issued HIA Supplementary Planning Document (2011) which provides guidance on undertaking HIA to ensure that the creation of healthy and inclusive communities and that health impacts are adequately addressed during throughout the development process.

2.3 Definitions and determinants of health

Many groups concerned with health, including the WHO, advocate a wider, social understanding of health. The broader understanding of health is captured in the WHO definition '*Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity*²'.

The social model of health³ considers the range of environmental, social, economic and fixed factors (or determinants) that influence health and wellbeing. The key determinants of health can be categorised as follows:

- Pre-determined factors such as age, genetic make-up and gender are fixed and strongly influence a person's health status.
- Social and economic circumstances such as poverty, unemployment and other forms of social exclusion strongly influence health, and improving them can significantly improve health.
- How the environment in which people live, work and play is managed; its air quality, built environment, water quality, can damage health, or provide opportunities for health improvement.

² World Health Organisation (WHO), (2007). Constitution of the World Health Organization, Geneva, 1946.

³ Dahlgren and Whitehead (1991)

- Lifestyle factors such as physical activity, smoking, diet, alcohol consumption, substance abuse and sexual behaviour, can have significant impacts on health.
- Accessibility of services such as the National Health Service (NHS), education, social services, transport (especially public transport) and leisure facilities influence the health of the population.

Of these, only the pre-determined factors are unlikely to be influenced by a development proposal. The HIA will therefore consider all relevant health determinants other than pre-determined factors.

3 Project Context

When complete, Northstowe will comprise a town centre, plus two local centres, education facilities, other community infrastructure, and up to 10,000 new houses. The proposals for Northstowe have been brought forward over a number of years, with key guidance provided in the Northstowe Area Action Plan (adopted 2007) and in the Development Framework Document (endorsed by the Northstowe Joint Development Control Committee in 2012). Further details on the context are set out in the Planning Statement.

3.1 Northstowe Phase 1

Outline planning permission was granted to Gallagher Estates in April 2014 for the Northstowe Phase 1 development, comprising:

- up to 1,500 dwellings, including affordable housing in a mix of tenure types;
- a local centre, including space for a community building and provision for retail and other appropriate uses;
- a primary school;
- 5ha of employment land including a household waste recycling centre and foul water pumping station;
- formal and informal public open space, including a sports hub of over 6ha and approximately 23ha of additional public open space including parks / play space and a network of footpaths and cycle ways;
- water bodies of approximately 5.2ha including a water park providing a recreational, ecological and drainage resource;
- 1.57ha of allotments and community orchard;
- improvements to the existing B1050;
- earthworks and cut and fill to enable land raising and re-profiling of the site for sustainable drainage purposes.

Work is expected to commence on site in late 2014.

3.2 A14 road improvement proposals

The current Highways Agency plans include a series of upgrades to the A14 between Cambridge and Huntingdon, including:

- widening the existing A14 over approximately five-and-a-half miles to provide three lanes in each direction between Swavesey and Bar Hill, and to four lanes in each direction between Bar Hill and Girton;
- widening of a 1.5 mile section of the Cambridge Northern Bypass between Histon and Milton;
- improvement of existing A14 junctions at Swavesey, Bar Hill and Girton; and
- a new bypass to the south of Huntingdon.

The improvements will relieve current traffic congestion as well as providing capacity for future development in the area, including Northstowe. They will also deliver economic, environmental, and road safety benefits across the region. The proposals are therefore closely linked with the delivery of Northstowe.

3.3 Northstowe Phase 2

Planning permission is sought for the development set out at Section 1.2, with full details of the scheme are set out in the Planning Statement submitted with the application.

3.4 Construction programme

Construction of Northstowe Phase 2 and associated infrastructure would take approximately 15 years between 2016 and 2031 and would be phased as summarised in Table 2. First occupancy is expected in 2019.

Table 1 Construction programme

Activity	Years
Phase A	2016 – 2018: To include secondary school, completion of water park and enhancement of green separation (west).
Phase B	2017 – 2019: To include initial residential units adjoining Phase 1, commencement of access road to south (through future Phase 3 area to connect to Southern Access Road (West))
Phase C	2019 – 2021: Town centre commences, including initial retail facilities, primary school, completion of Southern Access Road (West);
Phase D	2021 – 2023: Residential area to south and construction of town square and sports hub (east)
Phase E	2023 – 2026: Residential area established in former barracks area, continuation of town centre, primary school
Phase F	2026 – 2029: Last residential area and completion of town centre and northern sports hub
Town centre	2020 – 2031: Construction to start in Phase C
The Southern Access Road (West)	2017 - 2020

Further details of the Northstowe Phase 2 development are reported in the following documents:

- Planning Statement;
- Design and Access Statement; and
- Environmental Statement.

4 HIA methodology and scope

4.1 Guidance documents

The scoping phase of the Northstowe Phase 2 HIA was steered by the Planning for Health 'Rapid HIA Tool checklist' and guidance produced by the NHS London Healthy Urban Development Unit (HUDU, 2013).

The aim of the checklist is to ensure that *'health is properly considered when evaluating and determining planning proposals and that where possible development plans and proposals have a positive rather than a negative influence on health'*.

The assessment methodology, including the assessment of significance of impacts was developed from that outlined in the 'The Merseyside Guidelines for Health Impact Assessment'. (Merseyside Health Impact Assessment Steering Group, May 2001).

4.2 Methodology

The methodology described below provides robust information on the health effects of Northstowe, to assist South Cambridgeshire District Council and Cambridgeshire County Council in its consideration of the outline planning application for the Northstowe development.

The HIA has been undertaken through a systematic process of:

- Scope definition;
- Policy review;
- Baseline data gathering;
- Identifying health determinants
- Linking health determinants with health effects;
- Assessment of health impacts; and
- Development of evidence based recommendations.

4.2.1 Geographical scope

The development will affect the health of existing communities in the surrounding villages and, in some cases, the wider South Cambridgeshire area. The health of the new community within Northstowe will also be considered.

For a detailed analysis the area has been subdivided into a number of geographical units. This comprises the Super Output Areas (SOAs) which are designed for the collection and publication of statistics in a small area as follows:

Lower Super Output Areas (LSOAs) – Originally generated during the 2001 Census, the geographical units were constrained by the Standard Table Wards. They have a minimum size of 1,000 residents and 400 households, but they were updated in the 2011 Census and there are now 34,753 LSOAs in England and Wales.

Middle Super Output Areas – Generated automatically from groups of LSOAs in the 2001 Census. They had a minimum of 5,000 residents and 2,000 households and this was subsequently amended to suit local requirements such that there are now 7,201 MSOAs in England and Wales with an average population of 7,200.

The proposed Northstowe development site is located near to the villages of Rampton Drift, Longstanton and Oakington. The village of Oakington lies within the LSOA of South Cambridgeshire 003A, whilst Longstanton lies within the LSOA of South Cambridgeshire 003B and Rampton Drift lies between both. The villages and the proposed site are within the MSOA South Cambridgeshire 003, which is located in South Cambridgeshire local authority in the East of England region.

The geographical scope generally aligns with those outlined in the 2011 Census. The defined regions for the HIA include:

- regional level comprises the East of England;
- the district level comprises South Cambridgeshire;
- the neighbourhood level comprises South Cambridgeshire 003 MSOA; and
- the LSOA levels are South Cambridgeshire 003A ('Oakington') and 003B ('Longstanton').

It should however be noted that there are some instances where information is not available at these levels and this is specified where applicable, for example some health statistics provided by the NHS Cambridgeshire & Peterborough. There is no existing population within the Northstowe development site, but a demographic projection of the potential future population in Northstowe has been undertaken.

4.2.2 Temporal scope

Temporal scope: impacts on health will change throughout the phased development. For the purposes of the HIA the following assessment phases have been selected:

Construction - Impacts on Phase 1 residents, existing villages and Rampton Drift;

Early occupation - Impacts on Phase 1 residents, existing villages and Rampton Drift, and early occupants of Phase 2. This will occur within sub-phases C and D as described in Table 2; and

Full build out - Impacts on Phase 1 residents, existing villages and Rampton Drift, occupants of Phase 2, and occupants of Phase 3.

4.3 Structure and method of the assessment

4.3.1 Policy Review

National, regional and local policies, plans and strategies relevant to health, including National Institute for Health and Care Excellence (NICE) public health guidance, have been reviewed to provide a rationale for the HIA. The policy review for the HIA has included local policies relevant to health such as:

- Health and wellbeing strategies
- Sustainable community strategies.

The aim of the policy review was to identify local health policy and review how the Northstowe, Phase 2 development may impact on these, both positively and/or negatively.

Policies reviewed as part of this HIA are presented in Appendix A.

4.3.2 Baseline data gathering

Baseline data has been collated from a range of sources to provide an overview of the existing population, existing health profile, socio-economic conditions in the local community and the physical environment in the locale.

The data reviewed includes, but is not limited to:

- Public Health England 'Health Profiles' 2014;
- Public Health England Active People Surveys;
- The Department of Communities and Local Government (DCLG) 'The English Indices of Deprivation' 2010;
- Office for National Statistics, Census 2011 data;
- South Cambridgeshire District Council information related to the most recent area profiles, existing services, facilities and open space and annual monitoring reports;
- NOMIS labour market data for South Cambridgeshire; and
- Joint Strategic Needs Assessments for South Cambridgeshire.

The existing and future profile applicable to the HIA is reported in Appendix B.

4.3.3 Identifying health determinants

An initial scoping exercise was undertaken by the HIA team to establish an appropriate 'short-list' of health determinants for the HIA. The scoping workshop was structured around the HUDU checklist and the resulting list of determinants for further assessment was based on an understanding of the characteristics of the proposed development and the local area.

The HUDU Rapid HIA Checklist identifies the following potential health determinants that may be relevant to a given project:

- housing quality and design;
- access to healthcare services and other social infrastructure;
- access to open space and nature;
- air quality, noise and neighbourhood amenity;
- accessibility and active travel;
- crime reduction and community safety;
- access to healthy food;
- access to work and training;

- social cohesion and lifetime neighbourhoods;
- minimising the use of resources; and
- climate change.

A review of the Northstowe Phase 2 development was conducted against the assessment criteria outlined under each determinant in the checklist. It established which issues have the potential to impact on health and wellbeing, and therefore which determinants would be examined in further detail in the assessment and which could be excluded.

A scoping workshop was then undertaken in July 2014 with representatives from South Cambridgeshire District Council (SCDC), Cambridgeshire County Council (CCC) the HCA and a local GP to agree and finalise the list of determinants for the HIA. The HIA scoping report included in Appendix D provides more information regarding the scoping exercise.

4.3.4 Linking health determinants and health impacts

Using available literature, including previous health studies and recent research, an evidence base will be collated to identify links between the selected determinants and health impacts.

Impacts may be direct or indirect and links may be causal or compounding. Key reference material is likely to include:

Government health policies, programmes and strategies;

Public health reports and research papers from a range of sources, including:

- Department of Health (DH);
- WHO;
- National Institute for Health and Care Excellence (NICE);
- Health Development Agency (HDA);
- Previous HIAs for urban development projects; and
- Peer-reviewed journal articles.

The evidence base linking the health determinants and health impacts is found in Appendix C.

4.3.5 Assessment of health impacts

Impacts of the development on health determinants

The expected effects of the development on both the determinants of health have been identified in a number of studies that form part of the planning application documents. Information from these studies has been used to inform the assessment of the effects of Northstowe on the determinants of health as shown in Table 2.

Table 2 Application documents relating to health determinants

Health Determinant	Application Documents
Housing quality and design	Planning Statement Design and Access Statement Energy Strategy Sustainability Statement
Access to healthcare services and other social infrastructure	Town Centre Strategy Planning Statement Retail Capacity and Impact Report
Access to open space and nature	Design and Access Statement Planning Statement Town Centre Strategy Environmental Statement (ES) - Landscape Assessment
Air quality, noise and neighbourhood amenity	Construction Environmental Management Plan (CEMP) ES – Air Quality Assessment ES – Noise Assessment
Accessibility and active travel	Transport Strategy Planning Statement Transport Assessment Town Centre Strategy Design and Access Statement
Crime reduction and community safety	CEMP Planning Statement Design and Access Statement Consultation and Engagement Report
Access to healthy food	Town Centre Strategy
Access to work and training	ES – Socio-economic Assessment Planning Statement Town Centre Strategy Economic Development Strategy
Social cohesion and lifetime neighbourhoods	Planning Statement Design and Access Statement Town Centre Strategy
Minimising the use of resources	CEMP Waste Strategy Sustainability Report
Climate change	Energy Strategy Sustainability Report Planning Statement

Impacts on health and wellbeing

The impacts of the proposed development on the determinants of health have knock-on effects on the actual health and wellbeing of the populations affected by the development. These were assessed on the basis of known causal linkages identified through the literature review.

The assessment of health impacts has been undertaken on a purely qualitative basis. Potential changes in health based statistics have not been quantified, since these have a wide and complex range of contributory factors, many of which are not related to the proposed development. The purpose of the assessment is to identify opportunities to improve the factors affecting the health and wellbeing of communities, rather than to predict changes in disease prevalence.

Distinctions have been made between the following impact types:

- **Timing of impact:** most impacts will occur at the construction and operational stages. The assessment will distinguish between the initial / early occupation and later occupational stages when full build-out has been achieved.
- **Source of impact:** these will be clearly defined and include construction activities, construction workforce, occupation of Northstowe by the new population, traffic (both construction and operational), urbanisation, physical infrastructure etc.
- **Receptors:** these may be geographical areas (within Northstowe, local villages or the wider district), or particular vulnerable groups (the elderly, young people, families, ethnic minorities etc).

Assessing the significance of impacts

The significance of potential health effects have been assessed according to the criteria described in the Merseyside Guidelines for Health IMPACT Assessment (Scott-Samuel et al). The Guidelines involve the classification of effects in the following different ways:

Determining the nature of the impact;

Assessing its measurability; and

Estimating the degree of certainty or risk as described below:

- The **nature** of the impact is classified either as positive or negative;
- The **measurability** is defined on a three point scale of qualitative, estimable or calculable;
- The **degree of certainty** of the impact is classified using the terms speculative, probable and definite:
 - **speculative** effects occur where linkages between the determinant and health effects have been established but where a reasonable level of action is required to take up the opportunities available;
 - **probable** effects are generally those where linkages between the determinant and health have been established and where the effects do not require individuals or organisations to take a particular course of action; and
 - **definite** effects are those which are considered to be inevitable.

The Guidelines stress that definite, quantifiable effects are not necessarily more important in the assessment than speculative and qualitative effects.

The assessment will also consider the cumulative effects of changes in a number of determinants on a given receptor (i.e. cumulative impacts from changes in the air quality, noise and visual environment on a residential receptor).

Health inequalities and the potential for disproportionate impacts on certain vulnerable groups will be taken into account in the assessment.

4.3.6 Recommendations and monitoring

Where impacts are identified in the HIA, recommendations are proposed to reduce any negative impacts and maximise any positive impacts on health from the proposed development.

A number of potential health issues identified in the assessment have been partially or fully mitigated through measures contained in the masterplan and supporting strategies and the EIA process. These are identified and cross-referenced. Where necessary, further recommendations are proposed to reduce the negative effects and maximise the positive effects on health of the proposed development.

Where recommendations are put forward in this report, the responsibility and timing of actions required to implement them is also suggested. In some cases the responsibility rests with the scheme promoters at a later design and planning stage, and in others action would need to be taken by other parties, such as service providers. In such cases the recommendations should be seen as pointers to guide the future planning and management of the development, rather than as commitments to action on the part of third parties. A number of issues raised will be taken forward through statutory processes such as Section 106 negotiations between the scheme promoters and South Cambridgeshire District Council.

4.3.7 Limitations of the study

Literature and baseline data used in the study has been limited to readily available published sources, and the information contained within the Environmental Statement and other application documents has been heavily relied on to characterise the study area and identify effects on health determinants.

Anecdotal evidence from pre-application consultation is referred to in this assessment where relevant. It is understood that such evidence may be influenced to some degree by the views of the individuals consulted, and as such any anecdotal evidence has been clearly identified.

The approach to the assessment of health effects has been qualitative, identifying likely positive and negative effects based on the connections between determinants and health identified within the literature. The assessment has not attempted to quantify the actual changes in population health resulting from the development.

5 Assessment of health outcomes and recommendations

5.1 Housing quality and design

This section considers the potential effects on health from housing quality and design associated with the construction and operation of the proposed development.

This topic is concerned with:

- Code for Sustainable Homes, health and wellbeing criteria;
- Internal space standards, orientation and layout;
- Wheelchair accessibility and adaptable homes;
- Affordable housing and dwelling mix; and
- Energy efficiency.

5.1.1 Existing conditions

As mentioned in Appendix B households in the area are generally composed of families rather than individuals and over a fifth of households in South Cambridgeshire are married couples and/or civil partners with dependent children.

Residences are relatively modern in South Cambridgeshire as over 70% of all private sector dwellings were built after 1964 in comparison to the national figures of 40%⁴.

The same report also estimated that over a fifth of private dwellings in South Cambridgeshire failed the Decent Homes Standard mainly attributable to disrepair, inefficient heating and ineffective insulation. All council housing meets the Decent Home standards. Fuel poverty⁵ was evident for 12% of households⁶. It has also been highlighted that almost half of the households occupied by elderly are non-decent homes.

The 2011 Census highlights that home ownership is high. Almost three quarters of households in South Cambridgeshire are owned outright and/or owned under a mortgage or loan whilst another 12% are privately rented.

⁴ South Cambridgeshire District Council (2012) South Cambridgeshire Housing Strategy 2012-2016

⁵ Fuel poverty is defined as spending more than 10% of gross income on maintaining a reasonable degree of thermal comfort.

⁶ Department of Energy & Climate Change (2011) Sub-regional fuel poverty data

House prices are higher than the regional average and increasing. The average house price in South Cambridgeshire in June to November 2012 was £306,032 which is a 52% increase since June-November 2010⁷.

There are significant pressures in trying to buy new homes as over two thirds of individuals could not afford to buy in South Cambridgeshire. A large deficit in socially rented housing in South Cambridgeshire has also been identified⁴. The most recent figures identify that during 2010/11 505 homes were being let in comparison to the 5,000 households looking for affordable accommodation. In the previous three years there was also between 500-600 new applications made per year to the Housing Register.

The number of empty homes in South Cambridgeshire represented just 1% of the total housing stock and 30% of empty home owners stated that the cost of repairs was a factor in the property remaining empty.

It is envisaged that as part of Northstowe Phase 1, there would be up 1,500 additional dwellings including affordable housing in a mix of tenure types. The quality and design of these houses would be energy efficient with good internal space standards.

5.1.2 Impact Assessment

Construction phase

Construction activities have the potential to affect the amenity of existing residential areas by changing the environmental conditions attributed to these areas, such as local air quality, current noise levels and visual intrusion / privacy.

Effects on amenity due to construction activity are often expressed as a source of concern by local communities. Whilst construction impacts are temporary, they can often have a semi-permanent aspect to them, particularly if construction timeframes are extensive. Concerns over negative amenity impacts have the potential to detrimentally affect health as housing insecurity is known to be linked to stress and other mental health issues.

The construction stage of Northstowe Phase 2 is likely to generate 632 net additional direct full time equivalent (FTE) jobs within the South Cambridgeshire area, which will require short term rented accommodation to serve migrant construction workers as it is assumed that not all construction positions would be filled by the existing local population. It is noted that the Environmental Statement⁸ states that temporary housing may need to be provided to accommodate contracted workforces, which may be in the form of existing residential letting units. This may have an affordability impact on the local rental market as suitable properties may be rented by contractors for their workers.

⁷ South Cambridgeshire Crime & Disorder Reduction Partnership (2011) South Cambridgeshire Strategic Assessment 2011: An analysis of community safety issues

⁸ Northstowe Phase 2 Environmental Statement: Chapter 8: Socio-economics

Early occupation

Those users who purchase properties during the early parts of Phase 2 will experience similar impacts during construction as those existing users within Northstowe Phase 1 and the existing local communities.

However, benefits associated with full build-out will also be experienced by users, which is likely to include members of the local community. These benefits include access to a range of housing types and tenures. A proportion of properties will be built to Lifetime Homes standards and there will be affordable housing provision provided. These issues are explored in further detail below.

Full build-out

Northstowe Phase 2 will provide approximately 3,500 new homes with the following mix:

- 33% one or two bedrooms;
- 41% three bedrooms; and
- 26% four or more bedrooms.

Northstowe Phase 2 seeks to provide a mix of housing types so a wide choice of housing is available for future residents. This includes a range of tenures and dwelling mix including terraced, semi-detached, detached, town houses and apartments. All houses will achieve a minimum of level 4 for the Code for Sustainable Homes, Lifetime Homes standards would be achieved for all affordable and some market homes, all buildings would enable access for all (in accordance with the Disability Discrimination Act 2005) and all homes would be built to high fabric energy efficiency levels.

Affordable housing will be provided as part of Northstowe Phase 2. The proposals have been assessed on the basis of a 20% provision, though the exact provision will be subject to the negotiation with South Cambridgeshire District Council as part of the package of planning obligations for Phase 2.

The proposed housing mix is likely to provide a proportion of residential units for those users within the local and regional community who are first time buyers.

5.1.3 Assessment of health effects

Based on the health evidence review it is considered that temporary impacts of construction activities on housing quality may potentially have short term probable negative effects on the mental wellbeing of those most directly affected. Local people within existing communities, such as those in Rampton Drift are likely to be the most negatively affected due to prolonged exposure to construction effects. Vulnerable groups experiencing these effects are likely to be the elderly and children who are living in houses affected by nearby construction activity.

However, these impacts during construction are likely to be minimal assuming that the procedures set out in the Construction Environment Management Plan are implemented.

The influx of construction workers is a speculative negative effect as it could increase the demand in the local housing market which could further decrease the availability of housing for existing communities. It could increase the stress of attempting to purchase new homes in the area and therefore affect the mental health and wellbeing of potential home owners in new and existing communities.

At the early occupation and operational phase effects the new housing stock that meets key design standards is a definite positive effect for those families moving into the new homes. The homes in Northstowe Phase 2 would meet level 4 of the Code for Sustainable Homes, high fabric energy efficiency would be incorporated, homes would meet 2016 zero carbon standards and all homes would be designed to Secured by Design standards. This meets the targets set out in the Northstowe Area Action Plan and ensures the provision of good quality, secure housing stock that is more energy efficient than existing typical housing types, therefore resulting in an increase in affordable warmth and increased security. This will positively affect both the physical and mental health for new residents in the Northstowe Phase 2 development.

The proposal for new homes would provide a significant number of new homes needed to meet increasing demand within South Cambridgeshire. This is a definite positive effect for those individuals and families moving into the new homes. The mix of tenures, including 20% affordable housing that would be provided, would enable a range of family sizes and those in lower socio-economic groups to benefit with positive effects on their health and wellbeing. Affordable housing will be 'pepper-potted' throughout the housing areas in small groups or clusters and the affordable housing will also be indistinguishable from the market housing, therefore maximising social inclusion.

There is a probable positive effect associated with stress related to the local property market and the rental market. It would decrease during the early occupation and operational phase due to an increase in the provision of market and affordable housing as part of the Northstowe Phase 2 development. First-time buyers are likely to benefit from the affordability with consequential positive impacts on health and wellbeing. The good quality affordable housing provision is a probable positive effect as it would reduce health inequalities over the medium and long terms.

As part of the Northstowe Phase 2 development all affordable homes would be delivered to Lifetime Homes standards and at least 5% of market homes would also achieve these standards. The provision of lifetime homes enables the easy adaptation of the homes which could bring about positive effects for those who are less mobile. This is definite positive effect which is particularly beneficial for the elderly who as they are more vulnerable and currently experiencing higher levels of non-decent homes in South Cambridgeshire.

There would be a net housing density of at least 40 dwellings per hectare achieved throughout Northstowe Phase 2, however higher densities (61 dwellings per hectare and over) around the town centre are proposed to contribute to the design quality of this area. Lower densities (between 35 and 40 dwellings per hectare), are proposed to provide design variety and to reflect the more sensitive areas of the development site, such as the edge shared with Rampton Drift. This would ensure that the minimum space standards outlined in the Submission

Local Plan are achieved, having a positive effect on physical and mental health and wellbeing for the new and existing residents.

5.1.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Consider workers accommodation sites to relieve any negative impacts on the local rental market.
- Ensure local residents, particularly those at Rampton Drift are kept informed of construction activity through regular communications. The community development worker should ensure that updates relating to construction activities and to monitor and complaints relating to construction are given to the existing residents of nearby developments

5.2 Access to healthcare services and other social infrastructure

This section considers the potential effects on health from access to healthcare services and other social infrastructure from the construction and operation of the proposed development. Social infrastructure may include, but is not limited to local education, social, cultural and community facilities which can be accessed by all individuals.

This topic is concerned with:

- Needs and demand for services;
- Capacity of existing facilities and services;
- Timing, location and accessibility and developer contributions;
- Reconfiguring health and social care services;
- Multipurpose buildings and co-location of services; and
- Access and use of buildings by disabled and older people.

5.2.1 Existing conditions

The 2014 Services and Facilities studies⁹ for Longstanton and Oakington have provided evidence on the social infrastructure in the local area. It is a common feature of rural areas to have relatively poor access to services therefore it should be noted that Cambridge City contains an extensive range of health, social, education, leisure and cultural services and facilities and these are readily accessible by bus services or by car via the A14.

Longstanton and Oakington have frequent bus services and access to the CGB which provides access to these wider services. Both Longstanton and Oakington

⁹ <https://www.scambs.gov.uk/content/services-facilities-study>

benefit from the presence of the cycle route along the CGB and the access this provides to St Ives and Cambridge.

The provision of health and social care is delivered by a range of organisations in the area and led by Cambridgeshire and Peterborough Clinical Commissioning Group and Cambridgeshire County Council. In terms of access local to healthcare facilities there are no emergency services in Longstanton or Oakington and the nearest hospitals to the site are Papworth Hospital (approximately 17km away), Addenbrooke's Hospital (18.5km away) and Hinchingsbrooke Hospital (24km away). Longstanton has a GP and dental care facilities, however Oakington does not. Public transport services to these facilities are poor and there are no alternatives for those with mobility issues.

In terms of educational facilities, Longstanton does not contain a secondary school but is located within the catchment area for Swavesey Village College. Hatton Park Primary School is located in the village and it has capacity for 210 students and planned admission of 30 new students annually. Similarly, Oakington does not have a secondary school but is within the catchment area for Impington Village College and has a single primary school (Oakington Church of England Primary School), which has capacity for 199 students and admits 17 students annually. Furthermore Oakington also has a day nursery and pre-school.

In terms of local stores, Longstanton has no specific food stores but there is a combined post office and small village store. Planning permission was granted in 2011 for commercial units at Nelson's Crescent and it is understood that a small co-op is now proposed on the site. There are a number of other services in the village including a property management outlet, public house and a veterinary surgery. Oakington has a village store and other services including a café, car sales outlet, a garage, garden centre and public house.

There are community facilities in Longstanton such as the pavilion and Longstanton Sports and Social club at the recreational ground. There is also a parish office and village hall at the Longstanton Village Institute. There is an additional pavilion at the recreational ground in Oakington, which is a modern multipurpose facility. There are various indoor and outdoor recreational areas in both Longstanton and Oakington, which are discussed in detail in Section 5.3.

Northstowe Phase 1 development will provide a local centre that will have a primary school, a community building and provision for retail shop and services

5.2.2 Impact Assessment

Construction phase

The construction stage is likely to result in increasing demands on existing health and social services and facilities, due to the presence of the temporary workforce.

It is expected that a proportion of the workforce will be a migrant workforce from outside of the South Cambridgeshire area and therefore may not register with a local GP.

Early occupation

Demand for health and social services can be relatively high during the early stages of occupation for a mixed use development such as Northstowe Phase 2. Demand generally relates to the effects of poor mental health within the community which may arise out of a number of factors including: stress of relocating to a new area, poor mental health related to a lack of social capital in the early development stages and stress related to living in close proximity to on-going construction activity. This could put pressure on health and social services, affecting residents of Northstowe and the surrounding areas. However, the provision of a primary school, community building and local centre in Phase 1 will increase access to social infrastructure.

Full build-out

As detailed in the Town Centre Strategy new facilities including, nurseries, a youth club, a gym, health, community and fitness centres and places of worship will be implemented to create an integrated town centre environment. There is also expected to be new health services provided within Northstowe Phase 2, in the town centre, including a GP practice, dental, and optometry. Work is on-going with the relevant parties including the NHS to determine the exact type and scale of services required. All homes will also be provided with broadband connectivity which would provide the potential for accessing appropriate care and medical advice from home.

Community facilities based in the local centres will provide localised social services, which promote health and social care within the local community providing flexible and adaptable community buildings which are capable of meeting the health and wider community needs.

Open space, allotments and recreational facilities will also be included however the benefits of these are addressed in terms of the other health determinants.

The town centre will also serve existing local communities. The Design and Access Statement highlights how the location of the town centre has been planned in order to make it a convenient and accessible location.

Northstowe Phase 2 also provides sites for two primary schools, and a secondary school along with land for Special Education Needs and sixth form. The secondary school will serve existing communities and it is being delivered as the first phase of Phase 2.

5.2.3 Assessment of health effects

The effects of the increased demand from health services as a result of an inward migration of construction workers, is a speculative short term negative effect.

The provision of new health facilities as part of the town centre aspect of Northstowe Phase 2 is a definite positive effect. It will improve access to health and social care for both new and existing local communities. It will reduce barriers to healthcare, particularly for those who are less mobile such as those with chronic health conditions, those with disabilities and the elderly.

The provision of new educational facilities during the early occupation and operation phase provides is a definite positive effect for both new and existing

communities as the range of new educational facilities would improve access to education and cater for primary, secondary, sixth form and special needs students. This is particularly important as a large proportion of the population is projected to be young and educational attainment is linked to employment, income, housing and associated health effects. The school facilities could also be used for shared community activities and adult learning to benefit the wider community.

The availability of community facilities from Northstowe Phase 1 during the early occupation and as part of the Northstowe Phase 2 during operation is a definite positive effect. These facilities offer social infrastructure and opportunities for leisure and cultural opportunities which can have a positive impact on physical, mental, social and emotional health and aid personal development. As noted in the evidence base in Appendix C this is particularly important for the mental health of individuals in new communities, particularly for the young people and more deprived population by encouraging social cohesion. Increased access to services and social infrastructure through the provision of individual support with the community development worker and community facilities at an early stage in the development is particularly important to mitigate 'new town blues' for the new residents and enhances community building with the existing residents in nearby communities such as Rampton Drift.

5.2.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Ensure that sufficient health services are available within the local area to serve the needs of construction workers and monitor uptake of GP registrations by construction workers.
- Develop a range of transport options that provides access to services for all sectors of the new and existing communities, including the elderly, the disabled and those in lower socioeconomic groups.
- Encourage the use of school facilities for shared community activities and wider adult learning.

5.3 Access to open space and nature

This section considers the potential effects on health from changes in access to open space and nature associated with the construction and operation of the Northstowe Phase 2 development.

This topic is concerned with:

- Opportunities for physical activity;
- Access to open and natural space;
- Formal and informal outdoor play spaces;
- Maintenance of open space and sports facilities; and
- Integration with outdoor uses such as food growing.

5.3.1 Existing conditions

As mentioned in Appendix B, the surrounding area has a low population density and is mainly rural, agricultural land. It has been noted¹⁰ that the villages in South Cambridgeshire generally do not have a sufficiently large population to support all types of recreational open space, therefore significant cross-boundary usage is common between villages, particularly in new settlements.

Due to the rural nature of the district, South Cambridgeshire District Council does not directly provide outdoor sport, play and recreation facilities. The same study identifies the local villages that are lacking in some open space and recreation facilities.

Oakington & Westwick is experiencing a shortfall in outdoor play space and informal open space. There are a variety of sports facilities provided at Oakington Sports Pavilion and recreation ground, however the fenced off 0.3ha children's play area is deemed to be insufficient to meet the local community needs. Informal open space is also provided at the land north of Days Meadow, however it is only 0.18ha in size and also identified as insufficient. Allotments are also available at the land south of Cambridge Road to the east of Orchard Way.

Longstanton also has a shortfall in outdoor sport and play space. Longstanton Sports and Social Club at the recreation ground provides sports and children's playing facilities however the 3.10ha is deemed insufficient in terms of the population needs. There are a number of informal open spaces and allotments provided at Thatchers Wood, Nelson Crescent, Stevensons Road, Neither Grove and Prentice Close which are currently judged to meet the local community needs.

In terms of access to nature there are a number of designated ecological sites in close proximity including the Ouse Washes Ramsar site, Special Area of Conservation and Special Protection Area which is located 8km north-west of the site, Eversden and Wimpole Woods Special Area of Conservation which is located 12.3km south-west of the site and the Fenland Special Area of Conservation which is 12.3km north-east of the site. Over Railway Cutting County Wildlife is a non-statutory designated located approximately 2.6km north-west of the site.

The Northstowe Phase 1 development will provide informal and formal public open space including a sports hub of over 6ha, approximately 23ha of additional public open space including parks / play space and a network of footpaths and cycleways and 1.57ha of community allotments and orchards. There is also provision for 5.2ha of water bodies including a water park providing both a recreational and ecological resource.

¹⁰ South Cambridgeshire District Council (2013) Recreation and Open Space Study

5.3.2 Impact Assessment

Construction phase

Construction activities, including traffic movements and associated noise, dust, vibration and visual impacts have the potential to affect the setting of and people's enjoyment of those open spaces that lie in close proximity to the site.

Longstanton Road will be closed to traffic as outlined in the Transport Assessment, with access retained for pedestrians, cyclists and horse riders.

There will be potential disruption to public rights of way at Wilson's Road, including temporary closure as a result of the construction of the Southern Access Road (West).

Open spaces within existing communities will not be detrimentally affected by constrained access.

Early occupation

The provision of the sports hub, water park and open space outlined as part of Northstowe Phase 1 would enhance the amenity value of the local area, however on-going construction would cause the same impacts as outlined in the construction phase.

Full build-out

During operation, the Northstowe Phase 2 development has the potential to greatly enhance the existing amenity value of the local environment by providing almost 57ha publicly accessible green space. As reported in the Design and Access Statement, the provisions of formal and informal open space will help to link Northstowe Phase 2 with existing areas of open space within Longstanton, Rampton Drift and Oakington.

Water will be a defining feature of the public realm, providing a sense of place and enriching the quality of the streetscape. The network of open water features will enhance the open space and provide extensive recreational and ecological benefits to the new and existing communities.

There will be network of pedestrian and cycle networks included in Northstowe Phase 2. This will improve access to open space whilst providing recreational opportunities for physical exercise in the outdoors.

All homes will be within 1km of sports provision. The completion of the Phase 1 sports hub and the provision of the Phase 2 sports hub will provide recreational opportunities for exercise. Additionally Phase 2 will also make provision for one Neighbourhood Equipped Play Area (NEAP) and three Local Equipped Play Areas (LEAPs).

The Town Square proposed as part of Phase 2 will be the focus for programmed and spontaneous events and activities. As the eventual heart of Northstowe it is expected to be a place that visited by residents and visitors. It is likely that this open space area will be predominantly hard landscaped as it will be used for a range of activities to support the vitality and vibrancy of the town centre.

5.3.3 Assessment of health effects

There are no direct effects on existing open space provision within local communities, though visual impacts associated with construction may have a temporary slightly negative effect on people's enjoyment of open spaces within the wider locality if visual intrusion, such as construction plant being visible, exists. This can impact on the mental wellbeing of those most directly affected, particularly the residents of Rampton Drift whose interaction and enjoyment may be compromised.

There will be a short term and probable adverse effect on people's use of the public right of way at Wilson's Road, which will be closed and permanently realigned due to construction and operation of the Southern Access Road (West).

Once the Northstowe Phase 2 development is partially and fully implemented, there is definite positive effect through the increase in the provision of local informal and formal open space provision. This will be beneficial for both the physical and mental health of new and existing communities. Increased and enhanced interaction with nature and green space provides mental health and wellbeing benefits whilst increased opportunities for associated physical activity in open space provides physical and mental health benefits. Furthermore the provision of children's play areas within Northstowe Phase 2 targets this group and provides increased opportunities for recreation and physical exercise for children. As outlined in the evidence base in Appendix C, this is particularly important for the children and elderly in the population who have been highlighted to particularly benefit from access to open space and nature.

However, during early occupation, despite the provision of formal and informal open space in the Northstowe Phase 1 development, there may still be a residual risk associated with on-going construction activity and therefore potential user's perception of the quality and safety of new open space and hence their use of these spaces.

5.3.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Any temporary diversions during construction should be well communicated and fully accessible. Any temporary closures should also be kept to a minimum and for a minimum amount of time.
- Reinstatement of areas of existing open spaces or footways required for construction should be to the same standard as prior to construction.
- Access arrangements for the proposed formal open spaces should be designed to allow access for all user groups including those with disabilities and the elderly.
- Promote the new formal and informal open spaces within the new and existing local communities living around Northstowe Phase 2 to make them aware of and encourage them to use these new spaces.

5.4 Air quality, noise and neighbourhood amenity

This section considers the potential impacts on health as a result of changes in air quality, noise and neighbourhood amenity associated with the construction and operation of the proposed development.

This topic is concerned with:

- Construction impacts;
- Air quality;
- Land contamination;
- Noise, vibration and odour;
- Quality of the local environment; and
- Provision of green space and trees.

5.4.1 Existing conditions

A local Air Quality Management Area (AQMA) has been declared for the site due to past measured and modelled exceedences of air quality objectives for the annual mean objective for nitrogen dioxide (NO₂) and particulate matter up to 10 micrometres in size (PM₁₀).

Recent monitoring by South Cambridgeshire District Council¹¹ identifies that the NO₂ objective (annual mean objective 40µg/m³) was exceeded at Bar Hill in 2011 and at Hacker Fruit Farm Lolworth in 2012. The PM₁₀ objective (annual mean objective 40µg/m³) was exceeded at Impington.

Defra background pollutant concentrations¹² indicate that there are no predicted exceedences of NO₂ and PM₁₀ objectives and this is supported by the air quality modelling undertaken as part of the ES which also identifies that there are no predicted exceedences of the NO₂ and PM₁₀ objectives.

Baseline noise monitoring undertaken as part of the ES indicates that generally the surrounding areas are quiet, residential areas with low ambient noise levels.

The traffic noise levels are high near busier roads such as the B1050 and Dry Drayton. It is expected that the existing conditions will change even if the proposed development did not go ahead with increased road traffic noise likely to be the most significant impact.

¹¹ SCDC (2014) Air quality page: <https://www.scambs.gov.uk/content/local-air-quality-management>

¹² Defra (2014) <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>

5.4.2 Impact Assessment

Construction phase

Dust is not generally associated with negative health effects (unless contaminants are present), although it can cause 'nuisance' effects through amenity loss or perceived damage caused. Dust control measures are included as part of the Construction Environmental Management Plan.

Construction noise and vibration effects are for the duration of construction works only. Appropriate mitigation measures would reduce noise effects to acceptable levels and therefore no residual noise effects are expected from construction activities.

The residents of Rampton Drift would be encompassed by the construction of Northstowe Phase 2 development and would therefore be in close proximity to the works. However, the Construction Environmental Management Plan addresses the handling of any contaminated waste.

The Low Emissions Strategy to support the planning application also provides a package of measures to support the Transport Assessment and Framework Travel Plan to ensure that transport impacts of the construction and operation of the proposed development do not affect local air quality and climate change.

Early occupation

There are no specific impacts affecting early occupation, other than those reported as construction phase and full build-out.

Full build-out

In terms of permanent air quality impacts, concentrations of airborne pollutants from increased traffic were modelled and were determined not to be significant in terms of both existing and future receptors. The Low Emissions Strategy also outlines that there will be a number of site management and monitoring measures to ensure that transport associated with the operation of the proposed development does not affect local air quality and climate change.

The Environmental Statement states that noise mitigation will be implemented along Rampton Road to ensure that noise levels from operational traffic are not significant.

Implementation of procedures outlined in the Construction Environmental Management Plan relating to contamination should ensure that no risks are present to future users of the Northstowe Phase 2 development.

5.4.3 Assessment of health effects

Whilst there is not likely to be any significant residual impacts associated with air quality, noise and contaminated land, which might affect neighbourhood amenity, there will be a definite small negative effect on local communities, such as Rampton Drift in particular, during construction and early occupation as a result of construction activity including plant use and heavy good vehicle (HGV) trips and during operation as a result additional residential traffic and goods deliveries to town centre retail outlets. This can be particularly important for children who

make up a high proportion of the population and have been noted as particularly susceptible to such issues.

However, these impacts during construction are likely to be minimal if the procedures set out in the Construction Environment Management Plan are implemented.

During operation, effective implementation of the Northstowe Phase 2 Travel Plan, will help to limit the small negative effect of commuting and goods deliveries. The Northstowe Phase 2 development is also expected to provide a high quality development with community facilities, open space and opportunities for social cohesion alongside the well managed traffic and environmental issues., Therefore there is a positive effect through the improved neighbourhood amenity. This will be beneficial for mental health and wellbeing for the new and existing communities. This is particularly beneficial for the high numbers of families estimated to move into Northstowe Phase 2.

5.4.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Noise monitoring should be undertaken during noisy construction periods when in close proximity to existing residential receptors, particularly those at Rampton Drift.
- Site audits should be undertaken to ensure that construction activities are being undertaken in accordance with the Construction Environmental Management Plan
- Ensure local residents, particularly those at Rampton Drift are kept informed of construction activity through regular communications.

5.5 Accessibility and active travel

This section considers the potential effects on health as a result of accessibility and active travel associated with the construction and operation of Northstowe, Phase 2.

This topic is concerned with:

- Streetscape;
- Opportunities for walking and cycling;
- Access to public transport;
- Minimising the need to travel;
- Discouraging car use; and
- Road traffic injuries.

5.5.1 Existing conditions

The accessibility of services, facilities and social infrastructure in the local area has been outlined in Section 5.2. Currently the residents of South Cambridgeshire rely heavily on cars due to the rural nature of the district. Only 11% of households in South Cambridgeshire did not own a car or van in comparison with 26% in England.

Northstowe Phase 2 proposes improvement measures to the existing B1050.

Walking and cycling

There are a number of existing walking and cycling routes surrounding and adjoining the site including Public Rights of Way (PRoW), footways and cycleways. These are described further in the Design and Access Statement

There is a public byway which links Rampton Drift and Longstanton to the southwest to Rampton in the northeast. This byway also links from Rampton to Histon and a footpath running adjacent to Cottenham Lode. The byway routes through the site.

The at-grade crossing of the Cambridgeshire Guided Busway (CGB) has deep cuttings to guide the buses, which causes difficulty for crossing cyclists as they are required to dismount and carry bicycles across the tracks. The crossing links to a shared footway / cycleway which runs adjacent to the east side of the CGB, crossing to the other side of the CGB to the south at Westwick. This cycleway forms part of the National Cycle Network (Route 51) and links to Cambridge to the south and Huntingdon (via Over / Swavesey) to the north.

The public byway which routes around the southern boundary of the site links to a public footpath which runs south towards Bar Hill. This currently does not provide a crossing over the A14 and as such is limited in terms of its use. In addition, the byway links to the northwest via a bridleway routing along Over Road and Ramper Road which accesses Swavesey and the Ouse Valley Way to the northwest.

There is a long distance footpath connecting Dry Drayton, Oakington, Longstanton and Swavesey mainly alongside the carriageway or sharing the carriageway in locations such as Longstanton Road and on Ramper Road west of Over Road.

There is a National Cycle route adjacent to the CGB as well as a local cycle route (24) which routes from Girton to Swavesey along Cambridge Road / Longstanton Road / Longstanton High Street / B1050 / Ramper Road / Middlewatch.

Between Girton and Oakington there is an off-carriageway shared walking/cycleway provided on the northern side of the carriageway, which also ties into an off-carriageway route adjacent to Park Lane linking to Histon and the CGB. At the Oakington Crossroads, advanced stop lines are provided for cyclists to ease movements across the junction. On Longstanton Road from the Oakington crossroads the route becomes on-carriageway and for the remainder of the route to Swavesey the cycle route is on-carriageway. At its southern end in Girton the cycle route ties into the extensive network of routes within Cambridge.

Shared walking / cycleways route adjacent to Hatton's Road and the B1050 Station Road link areas to the south of Longstanton with Willingham. These provide suitable and preferred routes for walking and cycling from the site to surrounding areas (although no walking or cycling facilities are provided to the south of the B1050 Hatton's Road roundabout linking to the Bar Hill junction).

Footways are adjacent to the majority of the carriageways throughout the villages of Longstanton and Oakington. There are a number of access points into the Phase 2 site from Longstanton via PRow (footpaths, bridleways and byways).

Covered, well lit and CCTV monitored cycle parking is available at the two closest CGB stations to the site to encourage cycling as follows:

- Longstanton Park & Ride - 50 spaces; and
- Oakington - 30 spaces..

The footway and cycleway links and facilities as well as the PRow network surrounding the site, together with the proposed improvements in the Framework Travel Plan provide excellent permeability from the site to surrounding areas and will encourage walking and cycling to and from these areas.

Public Transport

As mentioned in Section 5.2, within the vicinity of the site there are a number of existing bus services in operation that serve Oakington and Longstanton. This includes the four services which route along the CGB. The closest stops to the site in Longstanton are on High Street (approximately 600m from the site boundary) and the closest stops in Oakington are situated on High Street (approximately 400m from the site boundary). The CGB stops are located approximately 1km to the south east and the north of the site boundary.

Cambridge Rail Station is located approximately 11km to the southeast of the site. CGB services A and C route to the station, which provides frequent services to a range of regional destinations such as London, Birmingham, Norwich and Ipswich. A new rail station is being developed on the mainline, known as Cambridge Science Park Station which is located in the north of Cambridge, close to the Science Park, St John's Innovation Centre and Cambridge Business Park. Planning permission has been granted to build the railway station, a direct bus link from CGB to the station and foot and cycleways to nearby roads. The Science Park CGB stop is only 10 minutes from Longstanton Park and Ride by bus, thus Northstowe would be within a short journey of the proposed new station.

Road Traffic Accidents and Injuries

Personal Injury Accident data has been obtained for the period between 01 December 2008 and 30 November 2013 from Cambridgeshire County Council.

Within the area (not including the A14) there were a total of 126 collisions of which 109 were classified as slight injury accidents and 17 were classified as serious injury accidents. There were no fatal injury accidents within the study area.

In addition to the above, accident data was obtained on the A14 between the Swavesey junction and Girton, and it showed 129 accidents occurred on this link during the study period.

The accident data showed that 24 accidents involved cyclists, 17 involved motorcyclists, five involved pedestrians, three involved buses and two involved HGVs.

On the B1050 Station Road the accident data indicated that all accidents involved vehicles travelling in a southbound direction, which either collided with objects / left the carriageway without another vehicle being involved or collided head on with vehicles travelling in the other direction. As such this could suggest a deficiency with the carriageway markings or speeding at this location.

As part of Northstowe Phase 1, a number of new access points are being provided at approximately this location and this should reduce vehicle speeds accordingly. The carriageway will also be upgraded. It is considered that the changes on the highway network implemented as a result of the Phase 1 development will improve safety issues on this stretch of the highway.

On Rampton Road there was a pattern of single vehicle accidents, where vehicles have left the carriageway and/or struck an unknown object at a corner, with all accidents occurring in rainy, snowy or icy conditions, suggesting that there may be an issue with vehicle speeds at this location.

Aside from these issues, the overall accident record in the study area over a five year period does not suggest any specific safety deficiencies on the local highway network in the vicinity of the site that may be exacerbated as a result of the proposed development.

5.5.2 Impact Assessment

Construction phase

The Construction Environmental Management Plan states that where practicable, Public Rights of Way across the site will be maintained. Consultation will be held with the local authority to determine how this should be progressed as part of detailed design. Subsequent, phase-specific Construction Environment Management Plans will provide details of how affected Public Rights of Way will be dealt with.

Early occupation

It is envisaged that early users of Northstowe Phase 2 will be affected in the same way as local communities are affected during the construction phase. Public Rights of Way affected during each phase will be addressed in the relevant sub-phase Construction Environmental Management Plan.

Early users will also have good access to new local centre facilities created as part of the Northstowe Phase 1 development and will experience the improvements to the B1050 proposed as part of the B1050.

Full build-out

The Design and Access Statement contains full details of the 'Movement Strategy' that will benefit the Northstowe Phase 2 development. The guiding principles of this strategy are to:

- Integrate existing Public Rights of Way;
- Create an interconnected network of streets and public spaces;
- Arrange and align routes for ease of walking and cycling; and
- Create a hierarchy of streets

Implementation of the above principles through subsequent stages of the Northstowe Phase 2 development will maintain and enhance provisions for active travel. Cycling routes will be provided in three categories:

- Commuter routes;
- Leisure routes; and
- Quiet Roads.

There are benefits associated with existing access routes as the B1050 is proposed to be improved further as part of the Northstowe Phase 2 development.

The Design and Access Statement also states that the development will be designed to be accessible to all members of the community and in accordance with the Disability Discrimination Act 2005 for those users that are disabled, including those with visual and hearing impairments, those with limited mobility, those that are elderly and those with pushchairs or small children.

The design of Northstowe Phase 2 will encourage sustainable travel around the development, and improve levels of public transport accessibility. A dedicated busway is planned to pass through the Northstowe Phase 2 development, which will link in with the CGB.

5.5.3 Assessment of health effects

During construction, there will be no negative effect directly related to accessibility and active travel as public rights of way will be maintained through the relevant CEMP for each sub-phase, by managing the movements of heavy good vehicles traffic effectively.

During operation there is a probable positive effect associated with the provision of new infrastructure that promotes active travel and increases accessibility for new and existing communities between key land uses. The design of transport infrastructure and the proximity of nearby services and facilities should enhance opportunities and encourage individuals to undertake active travel journeys. This should therefore bring about the beneficial physical and mental health effects associated with the physical activity involved in active travel, assuming the new and existing communities take up these opportunities.

A reduction in the use of private cars will also be encouraged via the Northstowe Phase 2 Travel Plan, which should highlight new public transport and active transport provision available.

Improvements to the B1050 as part of Northstowe Phase 1 and Phase 2 should also improve road safety on this stretch of the highway, leading to no increase and a probable reduction in road traffic incidents for both new and existing communities.

5.5.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Promotion of the Northstowe Phase 2 Travel Plan to new users to highlight alternative transport provision that is available to them.
- During early occupation phases and operation of Northstowe Phase 2 development, it is recommended that a programme of monitoring of pedestrian and cyclist movements be undertaken. Data collected can be used to monitor the effectiveness of active travel design features and help shape future design phases.

5.6 Crime reduction and community safety

This section considers the potential effects on health as a result of changes in crime and community safety associated with the construction and operation of the Northstowe Phase 2 development.

This topic is concerned with:

- Designing out crime;
- Security and street surveillance;
- Mix of uses that avoid creating under-used spaces; and
- Community engagement.

5.6.1 Existing conditions

The Cambridgeshire health atlas¹³ identifies crime and community safety statistics for the district. Generally, the total crime rates have steadily decreased in South Cambridgeshire in recent years. There have been notable downward trends during 2008-2013 for anti-social behaviour (48% decrease), dwelling burglaries (23% decrease), criminal damage (55% decrease), domestic abuse (21% decrease) and vehicle crime (43% decrease).

During 2012/13 there were 775 violent crime incidents recorded in South Cambridgeshire. There has been a downward trend for the past three years and the current levels are the lowest in more than six years.

When examining the Crime Map for the local area¹⁴ in May 2014, there were 3 incidents reported in Oakington and 7 incidents reported near Longstanton of

¹³ <http://atlas.cambridgeshire.gov.uk/Crime/atlas.html>

¹⁴ http://www.police.uk/cambridgeshire/SCambs_Histon/crime/

which anti-social behaviour comprised 5 of the reported crimes. Similar trends are noted in the previous months and anti-social behaviour is the most common problem in the villages and the Histon policing district where it represented 1,107 incidents or 34% of total crimes between May 2013 and May 2014¹⁵.

5.6.2 Impact Assessment

Construction phase

The construction stage may present opportunities for crime resulting from the presence of construction sites, which can attract vandalism and fly-tipping, and encourage theft. Of particular concern will be the potential theft of building materials from the site.

Construction sites located adjacent to residential areas (i.e. the first phase residential developments within Northstowe), or on routes to key services and facilities, can increase fear of crime as they have no active frontages and are often poorly lit and unpopulated during evenings and night time.

Effective implementation of site security measures, as outlined in the Construction Environmental Management Plan, should minimise potential impacts and reduce the fear of crime.

Early occupation

During the early stages of the development there is the potential for increased rates of anti-social behaviour, particularly among young people living within the development if there is inadequate or unsuitable provision of recreational and social facilities for them. The provision of a local centre and sports hub will provide opportunities for young people to pursue recreational and social interests. The phasing of such facilities within the development will be fundamental in ensuring that young people do not become discontented and resort to anti-social behaviour.

Anti-social behaviour during the initial stages of the development may arise out of a lack of social capital, where people do not feel any affinity with the surrounding community. A strong sense of community is often fundamental in strengthening the social controls that often inhibit crime and disorder.

Full build-out

Crime and fear of crime within the new population of Northstowe will be minimised through the incorporation of 'Secure by Design' principles throughout the development. These principles aim to design out the opportunities for crime and the fear of crime, and include the consideration of lighting, planting and positioning of buildings to ensure that public spaces and walkways are overlooked and do not provide opportunities for crime.

¹⁵ http://www.police.uk/cambridgeshire/SCambs_Histon/crime/stats/

Taking opportunities to design out crime from the development will be positive to the well-being of both the new residents within Northstowe as well as the surrounding existing community.

There is a potential negative impact associated with the proposed night-time economy for the town centre and the consequential effects of alcohol consumption. E.g, anti-social behaviour and under-age drinking.

5.6.3 Assessment of health effects

The potential reduction in safety during the construction phase is speculative negative effect given the implementation of appropriate security measures on site, including adequate security lighting, site hoarding and the implementation of a travel management plan during construction that will outline appropriate construction traffic routes and controls. The measures in the CEMP will reduce the potential effects on health.

During operation there is a probable positive effect. Opportunities for crime and the fear of crime would be reduced through adopting 'Secured by Design' principles. These principles aim to design out opportunities for crime and the fear of crime for the development through the careful consideration of lighting, planting and positioning of buildings to ensure that open space and walkways are overlooked and do not provide opportunities for crime.

There would also be community facilities for young people and a community development worker available which is likely to reduce the potential for crime and anti-social behaviour. The reduction of crime and the fear of crime is linked to beneficial effects on mental health and wellbeing directly and through encouraging greater use of open spaces, footpaths and cycleways by more vulnerable groups such as women, older people and people with disabilities. Feeling safe and secure is important for community development and the mental wellbeing of these vulnerable groups.

5.6.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Put in place appropriate security measures during the construction phases, including security staff, lighting, fencing off of supplies and storage of supplies in locked containers.
- Provide key facilities and support services, particularly for young people, at the early occupation stage.
- Work in conjunction with local police to increase the presence of Community Support Officers in the early phases of the development to help build positive attitudes and community cohesion.
- Monitor crime rates and fear of crime in the new development to assess the effectiveness of Secure by Design principles and identify problem areas.

5.7 Access to healthy food

This section considers any changes in access to healthy food associated with the construction and operation of Northstowe Phase 2.

This topic is concerned with:

- Healthy localised food supply;
- Hot food takeaways;
- Social enterprises; and
- Allotments and community food growing spaces.

5.7.1 Existing conditions

The nearest food shops and restaurants to the site are located in Oakington as outlined in Appendix B. There is also a Tesco superstore nearby at Bar Hill.

Allotments also provide opportunities for households or families to rent land for growing fruit and vegetables. A recent study¹⁰ has identified that many of the allotments in the district are well established and often managed by parish councils and other similar organisations that own the land. The availability of 85.41 hectares in South Cambridgeshire surpasses the district requirement (the provision of 0.2 ha per 1,000 population or 15 plots per 1,000 households) and the villages of Oakington & Westwick and Longstanton are deemed to surpass adequate levels of provision with 0.75ha and 2.38ha of allotments respectively.

As part of the Northstowe Phase 1 development there is also provision for 1.57ha of allotments and community orchards.

As mentioned in Appendix B, the prevalence of obesity in children and adults was significantly better than the national average. 12% of children in Year 6 are classified as obese in comparison to the national average of 18.9% and 18.7% of adults are classified as obese in comparison to the national average of 23%. It is however estimated¹⁶ that 46% of adults were overweight which is higher than the national average of 40.8%.

5.7.2 Impact Assessment

Construction phase

During the construction stage it is not anticipated that there would be a significant impact, either positive or negative, on the diet of the existing local community. This also assumes that construction workers will be offered self-catering facilities, either as part of rented accommodation or within worker accommodation sites, should they be proposed for any sub-phase.

¹⁶ Public Health England (2012) Active People Survey excess weight data for Public Health Outcomes Framework

Early occupation

Early occupiers of the first sub-phase of residential development will not have access to the new town centre, but there will be links to the local centre created as part of Northstowe Phase 1. The range of outlets provided after the peak development period of development onwards will have the potential to facilitate access to a wide choice of high quality food in Northstowe, and will improved choice for residents in the surrounding rural areas.

The provision of allotments and community orchards as part of Northstowe Phase 1 would also encourage a healthy diet of fresh produce for the residents.

Full build-out

As described in the Northstowe Phase 2 Town Centre Strategy, there will be a vibrant mix of small, medium and large retail establishments providing hot and cold food provision.

Allotments within the development will also provide opportunities to grow fresh fruit and vegetables, and could also be used to promote nutritional education. Educating people to make more healthy choices and giving them the skills to choose and prepare food are the most effective ways of improving diet.

5.7.3 Assessment of health effects

There is no effect on local communities during construction as there is no impact on existing allotment provision or retail establishments during construction. There are speculative negative impacts relating to construction workers access to healthy food whilst working on site, however the nearby food stores in Oakington and Bar hill provide opportunities for them to access a nutritious and healthy diet.

During early occupation there is no effect on existing facilities in Longstanton, Oakington and Barhill. There is a definite positive effect as Northstowe Phase 1 local centre will be available to provide a variety of foods, and the provision of community orchards and allotments would increase opportunities for growing fruit and vegetables leading to a definite benefits on diet and health, should the population take up these opportunities.

There will be definite positive effects on new and existing communities as a result of the varied retail establishments available in the Northstowe Phase 2 town centre and the provision of 1.5ha of allotments for personal use. As previously mentioned this will increase opportunities for growing fruit and vegetables leading to a definite positive effect, should the population take up these opportunities.

A small number of food outlets, an absence of fast food outlets and a variety of healthy food outlets in the retail establishments would also be beneficial for the new and existing communities in order to maintain low levels of obesity and overweight issues in children and adults.

5.7.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Ensure that adequate self-catering facilities and adequate food storage areas are provided on-site and in accommodation allocated to construction workers.
- Encourage a range of food stores to locate in the Town Centre at the start of early occupation when demand is likely to be low. Incentives for early uptake of retail units may be feasible.
- Provide premises to attract small specialist food retailers, and take steps where possible, to prevent the market being dominated by fast-food outlets.
- Develop the idea of setting up farmers market in the market square.
- Develop an allotment management plan to ensure a fair allocation of allotments and to outline the long term maintenance programme requirements needed to keep the quality of the allotment land high.

5.8 Access to work and training

This section considers the potential impacts on health as a result of access to work and training associated with the construction and operation of Northstowe, Phase 2.

This topic is concerned with:

- Access to employment and training;
- Job diversity; and
- Business support.

5.8.1 Existing conditions

Economic activity represents a good indicator of access to work and training for the local population. It considers the analysis of the working age population who are part of the labour market, i.e. currently in or seeking employment. The breakdown of the 2011 Census data as outlined in Appendix B highlights high levels of employment were evident in the area and this supports high levels of economic activity. In terms of those employed in the LSOAs, it should be noted that Oakington has a slightly higher proportion of self-employed individuals and Longstaton has a slightly higher proportion of employees.

The Economic Development Strategy for Northstowe reports high levels of in-commuting to Cambridge which reflects the concentration of jobs within the city – for every 10 working-age city residents there are 11 jobs. South Cambridgeshire also has a high jobs to resident's ratio – with 9 jobs per 10 working age residents¹⁷. Both areas witness an influx of workers from beyond the sub-region.

¹⁷ ONS Jobs Density, 2011

Economic inactivity is divided between those who are retired, students and those who look after a family or the long-term sick and/or disabled. This represents a much smaller proportion of the population than the regional and national averages; furthermore of those who are economically inactive, the majority are retired or full time students. Recent data has also identified that of those who are economically inactive over three quarters do not want a job¹⁸.

Given the areas historic strength as a seat of learning, it is unsurprising that it has become a focal point for higher-skilled individuals, with over half of employed residents qualified to NVQ level 4+ (Degree equivalent)¹⁹. The qualifications of individuals outlined in the 2011 Census finds high levels of education in those of working age in South Cambridgeshire as 39% of the total working age population have achieved at least NVQ Level 4 and 28% have a higher degree when compared with national figures of 33% and 17% respectively.

The number of claimants in South Cambridgeshire (6.9%) is much lower than the regional figures (12%) and the proportion of employees in elementary occupations and as process, plant and machine operatives is much lower than comparable figures for the regional and national averages.

High-tech industries dominate the South Cambridgeshire economy and construction makes up a very small proportion of the total workforce in the LSOAs and in South Cambridgeshire. This is particularly important in the consideration of employment opportunities arising from the construction of the proposed development.

Employment deprivation is one of the seven domains used to determine the overall IMD score discussed in Appendix B. The employment domain measures employment deprivation conceptualised as involuntary exclusion of the working age population from the world of work. The 'employment deprived' are defined as those who would like to work but are unable to do so through unemployment, sickness or disability. Employment deprivation is low in the LSOAs which supports the previous figures highlighting high levels of employment and economic activity.

As part of the Northstowe Phase 1 development there is provision for 5ha of employment land further increasing the local employment opportunities.

5.8.2 Impact Assessment

Construction phase

In comparison with the operational phase, the employment generated during the construction period will be generally less secure, due to the nature of construction contracts. It is also likely that a large number of the construction staff will be recruited from outside the area to fill the local skills gap, as there are relatively low levels of people employed within the construction industry in South

¹⁸ NOMIS (2014) South Cambridgeshire Labour Market Profile available at <https://www.nomisweb.co.uk/reports/Imp/la/1946157209/report.pdf>

¹⁹ ONS Annual Population Survey, 2013

Cambridgeshire at present. The temporary nature of construction employment and high proportion of in-migrants may lead to an increased risk of injury due to insufficient training, particularly in the area of Occupational Health and Safety, as well as anxiety over job security. It is expected that construction employment will therefore give rise to a mixture of positive and negative health impacts, although the net effect is likely to be positive. Training programmes will be set up during the construction phase.

The project is likely to provide a boost to service industries in the vicinity of the works including, food outlets and convenience stores as a result of the incoming workforce employed during the construction phase boosting demand for catering, transport etc. Any new employment or increase in profit generated by the construction work is likely to be positive to the wellbeing of the employees in these businesses as well as the wider community through positive impacts on the local economy.

Early occupation

As well as the continued impacts associated with construction, it is likely that employment opportunities will increase as the Town Centre and employment land is developed.

Full build-out

The Economic Development Strategy highlights a series of strategies that demonstrate the potential for creating employment within the Northstowe Phase 2 development area as well as providing easy access to jobs elsewhere, in particular the Cambridge central business district.

The Retail Impact Assessment identifies that approximately 4,000 new jobs could be created that are attributable to Northstowe Phase 2. A range of employment opportunities will be provided and this should help provide the need for different skills and individuals.

The proposed development will provide access to a number of jobs in a range of sectors, with the potential for linkages to employment and training initiatives. In addition the CGB provides access to employment opportunities in Cambridge and Huntingdon.

As detailed in the Utilities Strategy, high speed broadband will be provided in Phase 2 as an integral part of the development, which will provide opportunities for home working and self-employment.

The Economic Development Strategy highlights a series of economic aims for Northstowe, and sets out a number of strategies in order to build an economic role for Northstowe in line with those aims. The Economic Development strategy aims for Northstowe to become a 'community for enterprise, innovation and sustainable development'.

The provision of educational facilities including sixth form and the potential for adult learning also increases access to work and training by improving the education standards and opportunities for learning for the new and existing communities.

5.8.3 Assessment of health effects

There is a definite positive effect for those who obtain employment within the construction workforce, including those local residents who take up construction work employment. However, there are low numbers employed locally in this sector and low unemployment in the area, therefore it is more likely that construction workers would be recruited from elsewhere.

During the early occupation phase, there is a probable positive effect on both new and existing local residents due to the provision of 5ha of employment land as part of Northstowe Phase 1 and the new employment opportunities that arise as the Town Centre develops.

Once the Northstowe Phase 2 development is fully built out, there is a probable positive effects for existing and new communities, both from the full range of employment opportunities within the Town Centre and the enhancement of the wider local economy through the attraction of targeted new businesses as outlined within the Northstowe Phase 2 Economic Development Strategy.

The creation of new job opportunities during both the construction and operational phases of the development would have a beneficial effect on health and wellbeing. This is based on the known links between employment and mental health, and associated benefits due to increased income and access to opportunities that employment and income brings e.g. educational and leisure services and a range of foods.

There is also a probable positive effect associated with an increase in the opportunities available for local employment-related training and work experience. This can reduce social gradients and provide physical and mental health benefits for young people in both the new and existing communities in conjunction with improving longer-term social development.

5.8.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Monitoring of the effectiveness of the Northstowe Economic Development Strategy to ensure its aims are met.
- Monitor the uptake of new employment and training opportunities by young people within both the new and existing local communities.

5.9 Social cohesion

This section considers the potential effects on health as a result of impacts on social cohesion associated with the construction and operation of Northstowe, Phase 2.

This topic is concerned with:

- Social interaction;
- Access to community facilities;
- Voluntary sector involvement; and
- Community severance.

5.9.1 Existing conditions

The existing community within the area comprises a small area of housing at Rampton Drift. The nearby villages of Longstanton and Oakington are well established communities and have good existing support social networks and social infrastructure as outlined in Section 5.2.

Recent times have seen a significant amount of new build on the edge of the villages and expansion of the village communities, and anecdotal evidence suggests that residents are accustomed to small numbers of new people becoming integrated into their communities.

Community activity in Oakington centres around the sports centre, which is used for Parish Council meetings and groups such as the brownies. There is also a local pub, the White Horse. Longstanton Sports and Social Club provides sports facilities and is home to a tennis club and Longstanton Grasshoppers cricket club, as well as providing a venue for community activities and meetings. Other facilities in Longstanton include two churches, and local pubs and restaurants.

5.9.2 Impact Assessment

Construction phase

A decrease in the quality of the public realm resulting from increased traffic, noise and dust could negatively affect the facilities used by local communities, in particular external spaces. The receptors of these impacts would include existing communities in Longstanton, Oakington and particularly Rampton Drift, and later the occupants of the early occupation phases within the Northstowe Phase 2 development.

Implementation of the Construction Environment Management Plan will reduce the likelihood of these impacts occurring.

Early occupation

There are no specific impacts affecting early occupation, other than those reported in the construction phase.

It is known that new communities take time to develop and establish, however the community development worker will be introduced as part of Northstowe Phase 1.

Full build-out

The design principles within the Design and Access Statement and the key objectives of the Northstowe Phase 2 development includes the connectivity of active travel routes and open spaces, and the provision of community facilities that are accessible to new and existing communities. This, in conjunction with the provision of a community development worker, will maximise the opportunities for building social networks between the new and existing communities.

It is also envisaged that the local communities will participate in local democracy and the running of things, particularly community facilities to improve social cohesion. The Governance arrangements are not known at this stage; however the scope for measures to facilitate participation should be kept under review by the Distract Council and other stakeholders as the town develops.

5.9.3 Assessment of health effects

During the construction phase there is a probable negative effect on local communities as a result of reduced interaction between communities, reduced access between local communities and local community facilities, an increased presence of the construction workers in and around the local area and a decrease in the quality of public realm. Residents of Rampton Drift will be particularly vulnerable.

During the early occupation phase there is a probable negative effect on new residents of Northstowe Phase 2 as they will also face similar impacts to those identified in the construction phase. However, this will be reduced to some extent because they will be aware they are moving into a development where construction activity is still taking place.

During the operational phase there is a definite positive effect on the new residential community and a probable positive effect on existing local communities. The enhancement of social cohesion depends on individuals use and their interaction with the new community facilities, new active travel infrastructure and open space provision included within the Northstowe Phase 2 development. The community developer worker will also facilitate activities which bring people together, which aids social cohesion, social interactions and social capital. The presence of the community development worker would therefore reduce loneliness, social isolation and inequalities, leading to overall improvements in the mental health and wellbeing for new and existing communities, particularly for the elderly who are more vulnerable to social exclusion and loneliness.

The provision of lifetime neighbourhoods during the early occupation and operational phase is a definite positive effect for elderly residents in particular. This will have a beneficial effect on the physical and mental health and wellbeing as a lifetime neighbourhood offers improved quality of life and a sense of place for the new residents.

5.9.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Monitor complaints about disruption to community activities and events, particularly for children and the elderly, particularly resulting from construction activities.
- Promote the new facilities within both new and existing local communities through active promotion and joint community outreach.
- Undertake targeted community development activities to involve the residents of Rampton Drift within the developing community networks of Northstowe Phase 2, e.g. providing access to new allotments and encouraging volunteering within open space networks and nature programmes.

5.10 Minimising the use of resources

This section considers the potential effects on health as a result of impacts on resource use associated with the construction and operation of Northstowe, Phase 2.

This topic is concerned with:

- Recycling and reuse;
- Sustainable design and construction;
- Waste management; and
- Potential hazards.

Reducing or minimising waste including disposal processes for construction as well as encouraging recycling at all levels can improve human health directly and indirectly by minimising environmental impact, such as air pollution

5.10.1 Existing conditions

As outlined in the Waste Strategy South Cambridgeshire District Council has a weekly waste collection for households, residual waste is collected on one week and co-mingled dry recyclables and mixed organics are collected the following week.

The South Cambridgeshire Annual Monitoring Report²¹ has outlined that there has been a significant increase in the proportion of waste recycled and composted in the district during the last 11 years. During the monitoring period 56% of household waste was recycled or composted.

There are ten household waste recycling centres in South Cambridgeshire District Council that receive waste exclusively from householders in Cambridgeshire for recycling and disposal. An additional waste recycling centre has been included as part of Northstowe Phase 1 development, which is designed to provide recycling facilities for the whole of Northstowe.

5.10.2 Impact Assessment

Construction phase

The Construction Environmental Management Plan includes provision for the implementation of sustainable construction, which will include:

- Using locally sourced materials where possible;
- The use of recycled materials and aggregates where possible;
- Preparation of a Materials Management Plan;
- Sourcing sustainably sourced timber;
- Rainwater harvesting for irrigation and dust suppression;
- Providing environmental awareness training for staff; and
- Compliance with the Considerate Contractor's Scheme.

Early occupation

There are no specific impacts affecting early occupation, other than those reported in the construction phase. However early occupants will have access to the recycling centre proposed as part of Phase 1.

Full build-out

A Sustainability Statement has been produced for the project which sets out how the Northstowe Phase 2 will be delivered as a sustainable development. The Sustainability Statement covers the themes of community, energy, water, waste and materials, environmental capital, transport, community cohesion and education and employment, and sets out key objectives, targets and commitments for Phase 2 to deliver a sustainable development that aligns with sustainable development policy for the district.

As previously discussed in Section 5.1, homes will meet Code for Sustainable Homes Level 4 and a high level of fabric efficiency whilst non-residential buildings should achieve BREEAM Excellent. The proposed development would also achieve a low carbon standard and utilise green building specifications. An Energy Strategy has been submitted with the application and demonstrates how the Northstowe Phase 2 development will meet the ambitious sustainability aspirations and priorities set out in policy.

5.10.3 Assessment of health effects

Reducing or minimising the amount of construction waste produced would improve human health directly and indirectly by minimising environmental impact such as air pollution associated with transportation of waste materials.

Providing robust waste management procedures as outlined in the Construction Environment Management Plan, Waste Strategy and Site Waste Management Plan during the construction and early occupation on site will help to create a clean and pleasant environment that people will enjoy living and working in. The designing out of waste, the use of construction materials with low embodied carbon and target to achieve zero construction waste to landfill also decreases the health impacts such as air pollution.

There is a definite positive effect for new and existing communities from the implementation of design standards including Code for Sustainable Homes, BREEAM and best practice guidance from Waste & Resources Action Plan (WRAP) in conjunction with the provision of renewable energy and sustainable resource management associated with the new housing stock.

5.10.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- The sourcing and transport of all construction material, where possible, should minimise travel distance and consider sustainability credentials of source.
- Waste facilities within residential and commercial centres should be well designed and secure. Complaints relating to litter and waste should be monitored during the early occupation phases and corrective action should be taken that can be carried forward to future development sub-phases.

5.11 Climate change

This section considers the potential effects on health as a result of impacts related to climate change associated with the construction and operation of Northstowe, Phase 2.

This topic is concerned with:

- Renewable energy;
- Sustainable transport;
- Building design;
- Biodiversity; and
- Flood risk and drainage.

There are direct impacts linking the environment and health such as heat-related effects, flooding and poor air quality and indirect impacts such as fuel poverty, access to green space and disruption to services and access such as healthy food.

5.11.1 Existing conditions

In general South Cambridgeshire is a rural district with large areas of high quality agricultural land much of which lies within the floodplain. The key issues for the district relating to climate change are fluvial flooding and changes in the soil characteristics.

South Cambridgeshire is designated as an area of Serious Water Stress with areas subject to flood risk. The site's eastern fringe lies within Flood Zone 3 which has a high probability of flooding, however it should be noted that the majority of the site is in Flood Zone 1 which has a low probability of flooding.

The rural nature of the district also increases dependency on car travel, and road transport is a significant source of pollution in the district. Carbon dioxide

emissions per capita in South Cambridgeshire (8.7mt in 2011) were slightly higher than the County average (8.5mt). This is largely attributable to transport. In Cambridge per capita emissions (5.7mt) were particularly low, reflecting lower levels of car ownership and higher public transport use. Cambridge did however have slightly higher average emissions from industry than South Cambridgeshire and the County. Domestic carbon dioxide emissions in 2011 were similar across the geographies.²⁰

The Sustainable Parish Energy Partnership consists of 27 Parish Councils and it works with volunteers to help residents cut fuel bills and reduce carbon emissions.

The existing conditions that could impact on climate change in South Cambridgeshire have been analysed in the most recent Annual Monitoring Report²¹. Notable highlights for the district include:

The rate of carbon dioxide emissions per person from domestic sources, e.g. through the use of gas and electricity, has shown a small reduction over the last seven years. The household consumption of gas and electricity in the district has fallen whilst the generating potential of energy from renewable sources has increased through the provision of wind turbines at Wadlow Farm, West Wrattling and the provision of solar farms at Bourn, Chittering and Hasligfield. Furthermore in the last four monitoring years, over 80% of the planning permissions granted for developments greater than 1,000m² or 10 dwelling included renewable energy technologies that provided at least 10% of the developments energy requirements.

Water consumption fell during the monitoring period and Anglian Water have been running a campaign to promote water saving.

5.11.2 Impact Assessment

Construction phase

The Construction Environmental Management Plan includes provision for the implementation of sustainable construction, which will include:

- Using locally sourced materials where possible;
- The use of recycled materials and aggregates where possible;
- Preparation of a Materials Management Plan;
- Sourcing sustainably sourced timber;
- Rainwater harvesting for irrigation and dust suppression;
- Providing environmental awareness training for staff; and
- Compliance with the Considerate Contractor's Scheme.

²⁰ DECC CO2 Emission Estimates, 2011

²¹ South Cambridgeshire District Council (2014) South Cambridgeshire Annual Monitoring Report: Covering the period 1 April 2012-31 March 2013

Early occupation

Both Oakington and Longstanton have experienced flooding in the recent past. During the planning stage of Northstowe Phase 1, there was significant concern among the existing community with regard to flood risk implications of the new development. However, the Environmental Statement concludes that there is a low risk of flooding according to the Environment Agency's flood mapping data.

The Sustainability Statement has a key aim of achieving a sustainable community for the Northstowe Phase 2 development. The key objectives include creating a low carbon community, sustainable building and communities, and buildings and spaces that are adaptable to climate change, including flood risk, storms and extreme temperatures.

Implementation of the principles contained within the Sustainability Statement is likely to have a positive impact on climate change adaptation for future occupiers of the site.

Full build-out

The impacts of full build-out are the same as those described above for early occupation.

5.11.3 Assessment of health effects

There is no health effect on the health of new and existing communities associated with the construction and early occupation stages of development, assuming that the measures incorporated in the Construction Environmental Management Plan are implemented.

During the operational phase there is a definite positive effects for new residents associated with the adaptability of the new buildings to climate change, flood risk and extreme weather conditions. The creation of sustainable neighbourhoods, the future proofing of buildings, energy and water efficiency and the incorporation of measures to address climate change related changes in the microclimate. Landscaping and sustainable urban drainage systems are likely to have a beneficial effect on the physical and mental health of both new and existing communities as they guard against health effects related to higher summer temperatures and flood risk whilst improving surface water quality.

There is a probable positive effect on residents within local communities associated with precipitation and flooding as a result of the implementation of sustainable drainage systems to reduce flood risk and the use of wetland features to improve water quality. This is particularly beneficial for the mental health and wellbeing of new and existing communities as there is a lower risk of flooding.

The provision of energy efficiency measures, low carbon and renewable energy, energy security and the emphasis on moving away from fossil fuels and reducing private car emissions as a result of active and public transport provision is expected to bring about a beneficial effect on the physical and mental health of both new and existing communities through improved air quality and a more resilient community and transport network.

5.11.4 Recommendations and monitoring

The following recommendations should be considered as the design of Northstowe Phase 2 development is progressed through detailed design:

- Promote community education on energy and water management as part of the provision of new home information.

6 Conclusions

Overall, the Northstowe Phase 2 development is likely to have positive effects on the health of both new and existing communities living in and around the site.

During construction is when the majority of negative effects will be experienced by existing local communities. This primarily relates to the loss of residential amenity, which concerns air quality, noise, traffic and visual impacts.

Older people, children and young people, those with disabilities and those with young children, are likely to be most affected during the construction phase without mitigation measures being implemented.

The mitigation outlined within the Northstowe Phase 2 Environmental Statement and the recommendations contained within this HIA, will help to reduce the effects of construction activity and maximise potential enhancement opportunities, where these are feasible.

The proposed Northstowe Phase 2 development will help to reduce barriers to housing and services by providing new, including affordable, high quality housing and improve the living environment by improving access to open spaces, active travel routes and social infrastructure such as the new town centres including employment uses, the primary and secondary schools, sports hubs, link roads and the construction of the new highway link. This will have a positive effect on both new and existing communities and also help to narrow the health inequalities over the long term.

To ensure that health effects are addressed appropriately during the remaining stages of the planning process through to construction and implementation, collaborative working will be required between the HCA, South Cambridgeshire District Council, local parish councils and other key stakeholders.

Appendix A

Planning and policy review

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A1 National Policy

A1.1 Government White Paper Saving Lives: Our Healthier Nation (1999)

In the White Paper Saving Lives: Our Healthier Nation, the Government made a commitment to apply health impact assessment (HIA) to all relevant key policies, so that the consequences for health can be considered when policies are developed and implemented. The White Paper also acknowledges a need for health impact assessment of policies, plans and projects at a local and regional level.

A1.2 Government White Paper: Choosing Health – Making Healthy Choices Easier

This 2004 White Paper sets out the key principles for supporting the public to make healthier and more informed choices in regards to their health.

The paper sets out how the opportunities, support and information that people want to enable them to choose health should be made available. Furthermore it aims to inform and encourage individuals to help shape the commercial and cultural environment they live in so that it is easier to choose a healthy lifestyle.

It also considers non-health interventions on population health that should be incorporated before implementing policies (such as HIAs for examples) and afterwards through monitoring and evaluation.

A1.3 Government White Paper – Healthy Lives, Healthy People: Our strategy for public health in England

This 2010 White Paper responds to Marmot's Fair Society Healthy Lives report²² (Final Report 2010) and adopts the framework for tackling the wider social determinants of health. It presents the government commitment to protecting the population from serious health threats; helping people live longer, healthier and more fulfilling lives; and improving the health of the poorest, fastest.

Local governments and communities are at the heart of health and wellbeing for their populations and tackling inequalities and they are responsible and accountable for creating healthy planning through planning, transport, schools and housing.

²² The Marmot 'Fair Society Healthy Lives' report was an independent review of the most effective evidence-based strategies for reducing health inequalities in England from 2010. It was reviewed as part of the Evidence Base in Appendix B.

It has been noted that the Department for Communities and Local Government (DCLG) will support areas that streamline planning policy which aligns social, economic, environmental and health priorities into one place.

It also noted that health considerations are an important part of planning and that public health should be better integrated with areas such as social care, transport, leisure, planning and housing to keep people connected, active, independent and in their own homes and around the community.

A1.4 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published in 2012 to set out the government's planning policies for England. It also provides a framework for local people and their accountable councils to produce their own distinct local and neighbourhood plans so it is of material consideration in planning decisions.

The NPPF suggests that proposed development should be assessed for any expected changes and barriers to health and wellbeing. It therefore encourages the preparation of an HIA for a planning application within paragraph 171 which states:

'Local planning authorities should work with public health leads and health organisations to understand and take account of the health status and needs of the local population (such as for sports, recreation and places of worship), including expected future changes, and any information about relevant barriers to improving health and well-being.'

A1.5 National Institute for Health and Care Excellence Public Health Guidance

The National Institute for Health and Care Excellence (NICE) sets the standards for high quality healthcare and encourages healthy living. It is used by the National Health Service (NHS), local authorities and those involved with delivering care and promoting wellbeing. It has published a range of public health guidance. A summary of some of the advice notes and policies are provided below.

Advice note 'LGB4: Health inequalities and population health' (2012) provides recommendations on interventions to tackle health inequalities in communities. It aims '*to reduce the difference in mortality and morbidity rates between rich and poor and to increase the quality of life and sense of wellbeing of the whole local community*'.

Advice note 'LGB16: Community engagement to improve health' (2014) also emphasises that community engagement approaches should be promoted to encourage people to get directly involved with decisions that affect their health and to improve the planning and delivery of services, including those that impact on health and wellbeing.

'PH8: Physical activity and the environment' (2008) provides evidence-based recommendations on improving the physical environment to encourage physical activity. These include increasing pedestrian access, prioritising active transport and increasing walking route networks.

'PH17: Promoting physical activity, active play and sport for pre-school and school-age children and young people in family, pre-school and community settings' (2009) provides guidance on promoting physical activity for these groups. It recommends consulting these groups, high level strategic planning, methods for increasing physical activity and active travel and the provision of these facilities in new developments.

'PH30: Preventing unintentional injuries among the under-15s in the home' (2010) provides guidance on appropriate safety measures to make housing safer for children through high quality design.

'PH31: Preventing unintentional injuries among children and young people under 15: road design and modification' (2010) provides guidance on the coordination of work to make road environments safer through engineering measures.

'PH40: Social and emotional wellbeing' (2012) provides guidance on appropriate mechanisms to support the social and emotional wellbeing of vulnerable children under 5 years.

'PH41: Walking and cycling' (2012) sets out the guidance on how people can be encouraged to increase active travel and recreational walking and cycling undertaken, by reducing dangers and creating a more supportive environment.

'PH42: Obesity – working with local communities' (2012) provide guidance on community-wide approaches and interventions that can be used to reduce obesity.

There is also some guidance related to other health determinants which is currently in the process of being updated including 'PH9: Community engagement' (2008), 'PH19: Managing long-term sickness and incapacity for work' (2009), 'PH22: Promoting mental wellbeing at work' (2009),

A1.6 Planning Practice Guidance

The Planning Practice Guidance published in February 2014 provides guidance to ensure that local planning authorities ensure that '*health and wellbeing, and health infrastructure are considered in local and neighbourhood plans and in planning decision making*'. It considers the links between health and planning and states that built and natural environments are major determinants of health and wellbeing and their role is particularly important in promoting healthy communities.

The major issues relevant to this project that should be considered in the decision making process, in respect of health and healthcare infrastructure include:

- how development proposals can support strong, vibrant and healthy communities and help create healthy living environments which should, where possible, make physical activity easy to do and create places and spaces to meet to support community engagement and social capital;
- the healthcare infrastructure implications of any relevant proposed local development have been considered;

- opportunities for healthy lifestyles have been considered (e.g. planning for an environment that supports people of all ages in making healthy choices, helps to promote active travel and physical activity, and promotes access to healthier food, high quality open spaces and opportunities for play, sport and recreation);
- potential pollution and other environmental hazards, which might lead to an adverse impact on human health, are accounted for in the consideration of new development proposals; and
- access to the whole community by all sections of the community, whether able-bodied or disabled, has been promoted.

A2 Regional Policy

Since the revocation of the Regional Strategies in 2010 there are no appropriate regional policies to be considered for the purpose of this assessment.

A3 Local Policy

A3.1 South Cambridgeshire Local Plan Proposed Submission

This is the proposed submission Local Plan for South Cambridgeshire, also referred to as the draft Local Plan which updates and replaces the Local Development Framework. The draft Local Plan covers the period 2011-2031 and it aims to strike the right balance between growth and conservation, valuing what makes the area unique. It sets clear development needs, sets levels of employment and housing development that should be provided and sets a strong framework for development during 2011-2031.

Policy SC/2 Health Impact Assessment states that new developments should have a positive impact on health and wellbeing of new and existing residents and that developments for 100 or more dwellings should be accompanied by a full Health Impact Assessment.

The spatial strategy and development needs for south Cambridgeshire are set to ensure that it is a good place to live, work and study. It sets provisions for the quality of local environment and high quality new development such that impressive, sustainable growth is achieved. Policy S/6: The Development Strategy to 2031 states that Northstowe is one of the sites to be carried forward from the Local Development Framework (2007-2010) and that is expected to be carried forward in line with the Northstowe Area Action Plan.

Northstowe is also one of the strategic sites as outline in Policy SS/7 Northstowe Extension which identifies the reserve that reserve land allocated in the Northstowe Area Action Plan to provide flexibility for the phasing and delivery of the town including 9,500 homes.

Climate change objectives are set out in a number of policies to ensure that new development can cope better with the predicted impacts of climate change whilst

ensuring the reduction of greenhouse gases. This includes Policy CC/1 Mitigation and Adaptation to Climate Change, CC/3 Renewable and Low Carbon Energy in New Developments, Policy CC/4 Sustainable Design and Construction and Policy CC/6 Construction Methods. The conservation of water resources and protection against flood risk is also considered in Policy CC/7 Water Quality, Policy CC/8 Sustainable Drainage Systems and Proposal CC/9 Managing Flood Risk which sets criteria required for development to protect and enhance the water environment.

Policy HQ/1 Design Principles ensures that development should create sustainable and successful places that protect the special qualities of the district's rural character, whilst using the opportunities presented by development to enhance the built and natural environment. This is supported by Policy HQ/2 Public Art and New Development which encourages the integration of public art to enhance the quality of development and community inclusion.

The natural and historic environment is also protected through a number of policies. Policy NH/2 Protecting and Enhancing Landscape Character permits development that retain and enhances the distinctiveness of the local landscape and Policy NH/4 Biodiversity permits development that conserves and enhances biodiversity. Natural features are protected by Policy NH/5 Sites of Biodiversity or Geological Importance, Policy NH/7 Ancient Woodlands and Veteran Trees and Policy NH/14 Heritage Assets. Policy NH/6 Green Infrastructure aims to enhance green infrastructure in new development whilst Policy NH/15 Heritage Assets and Adapting to Climate Change supports measures to retain, re-use and safeguard historic buildings and other assets.

The delivery of high quality homes including new market and affordable homes is required to meet the housing needs, to support the creation of healthy communities and to contribute to a successful local economy. Policy H/7 Housing Density outlines that there should be 40 dwelling per hectare in Northstowe and Policy H/8 Housing Mix outlines the need for a wide choice, type and mix of housing to meet the needs of different groups in the community including families with children, older people and people with disabilities. The requirements for affordable housing and minimum net internal floor areas in residential developments is outlined in Policy H/9 Affordable Housing and Policy H/11 Residential Space Standards for Market Housing respectively. The delivery of gypsy and traveller sites as part of large scale new communities is also required in accordance with Policy H/20 Gypsy and Traveller Provision at New Communities.

The achievement of strong and sustainable local economic growth is a key objective and entrepreneurship, inward investment and innovation are actively encouraged. Policy EC/9 Promotion of Clusters states that Northstowe is especially suited for cluster development and that it is expected to include provision of a range of suitable specialist units. Policy E/10 Shared Social Places in Employment Areas outlines how in some cases small scale leisure, eating and social hub facilities will be permitted in business parks and employment areas in order to meet the needs of workers in the area. There is also hierarchy of preferred centres for retail development in Policy E/21 Retail Hierarchy which states that Northstowe is the top preference for consideration as town centres. However proposals for retail must be in accordance with Policy E/22 Applications

for New Retail Development such that the scale and floorspace is appropriate to the function and size of the local area.

As well as being well designed new developments, such as Northstowe need to promote good health, include necessary services and facilities when they are needed, provide open space, and allow safe movement by walking and cycling. New developments should also not adversely impact on the environment and where possible contribute to the health and wellbeing of the local community. The required contributions to the local community is set out in a number of policies as follows:

- Policy SC/1 Allocation for Open Space – sets out local needs for open space requirements;
- Policy SC/4 Meeting Community Needs – sets out need for Northstowe to contribute to local services and facilities so that a successful community can be established;
- Policy SC/6 Indoor Community Facilities – sets the required contributions to indoor community facilities from housing developments;
- Policy SC/7 Outdoor Play Space, Informal Open Space and New Developments – sets the contributions of new developments to these facilities to meet health and wellbeing needs;
- Policy SC/8 Open Space Standards – set outs the requirements for open space, sports and recreation facilities to provide for future needs of the district;
- Policy SC/10 Lighting Proposals – sets out the requirements for external lighting such that there are no adverse impacts on the environment, health and wellbeing;
- Policy SC/11 Noise Pollution - sets out the requirements for noise such that there are no adverse impacts on the environment, health and wellbeing;
- Policy SC/12 Contaminated Land – requires developers to assess contamination and potential risks to ensure that there are no adverse impacts on the environment, health and wellbeing;
- Policy SC/13 Air Quality – set the need for air quality assessments and demonstration that a new development will not lead to significant adverse effects on health, the environment or amenity from emissions to air.

There are also a number of policies focused on promoting and delivering sustainable transport and infrastructure to improve the local environment and the quality of life for the local community. Certain measures have been outlined for new developments such as Northstowe as it creates additional demand which needs to be appropriately planned for so that infrastructure is available when needed. Policy TI/2 Planning for Sustainable Travel outlines how development should strive to offer travel choice for all people appropriate to the scale of the development. The development should also promote good accessibility to a range of public transport, road safety and create places where walking and cycling have a priority over motorised traffic. The provision of adequate car and

cycling space should also be provided in accordance with Policy TI/3 Parking Provision. Suitable infrastructure for new developments should be in accordance with Policy TI/8 Infrastructure and New Development and contributions may be required for (but not excluding) transport, telecommunications, waste management, water supply, wastewater, flood risk and coastal change management infrastructure. Policy TI/9 Education Facilities sets out the required contributions to provide easily accessible, high quality and convenient educational services which help develop sustainable communities and support economic growth.

A3.2 South Cambridgeshire Development Control Policies

The Development Control Policies Development Plan Document (DPD) was adopted in July 2007 by South Cambridgeshire District Council. The DPD guides planning decisions within the district for the period up to 2016. This remains in place until the adoption of the Local Plan.

Policy DP/1 Sustainable Development states that a Health Impact Assessment must be submitted with applications for major development. A sustainable development should be proposed and it should include measures to minimise travel and reduce car dependency, a mix of compatible uses, the use of sustainable building methods and locally sourced materials and the minimisation of energy and resource use. Measures to mitigate climate change, contributions to the creation of socially inclusive communities (incorporating the provision of health, education, recreation, telecommunication, community services and facilities) and cultural heritage, water and ecological conservation and enhancements are also necessary.

Development should incorporate measures to preserve and enhance the character and environmental assets in accordance with Policy DP/2 Design of New Development. A permeable, inclusive development should be achieved such that all modes of transport are available in a safe, high quality environment that has a strong community focus.

Policy DP/3 Development Criteria which provides a checklist of criteria for developers that includes provisions for affordable housing, safe appropriate access that enhances pedestrian, cycling, public and community transport, outdoor play space and a design that minimises opportunities for crime. This is supplemented by Policy DP/4 Infrastructure and New Developments which highlights where contributions can be made to affordable housing, education, health care, public open space, community facilities and development and youth workers.

Policy DP/6 Construction Methods emphasises the need for developments to incorporate sustainable construction methods that make efforts to minimise adverse impacts on the local environment and amenity.

Policy HG/2 Housing Mix recommends that residential developments should incorporate a mix of residential types, sizes and affordability to meet local needs. The housing mix should respond to the local context of the site to secure a balanced community. An agreed mix of affordable housing is also required for

new developments as set out in Policy HG/3 Affordable Housing. This should be agreed during negotiations with due regard given to the local circumstances.

Policy ET/1 Limitations on the Occupancy of New premises in South Cambridgeshire sets criteria for the establishment of employment development. This includes providing office and other B1(a) Use Class in a sub-regional centre and the provision of B1(c), B2 and B8 Use Classes development that takes advantage of local skills and contributes to a greater range of local employment opportunities.

Small-scale employment (less than 25 people) is highlighted in Policy ET/4 New Employment Development in Villages which emphasises the need for small-scale employment in the B1 to B8 Use Classes provided that the development would contribute to a greater range of local employment opportunities, or facilitate cluster development within village frameworks

Policy EC/5 Development for the Expansion of Firms states that expansion will be permitted within Northstowe. Expansion refers to additions or alterations to an existing building, or physically related in terms of its siting and use, within the curtilage or immediately adjacent land.

The provision or commissioning of publicly accessible arts, crafts and design works is encouraged through Policy SF/6 Public Art and New Development. This is aimed at bringing about social, cultural, environmental and economic benefits to the existing and emerging communities.

Policy SF/10 Outdoor Play Space, Informal Open Space and New Development sets out the required contributions to such facilities. On-site contributions to outdoor playing space, informal open space, children's play space are necessary as need for recreation and play space increases. The minimum standards are outlined in Policy SF/11 Open Space Standards.

Further guidance on energy is provided in Policy NE/1 Energy Efficiency, Policy NE/2 Renewable Energy and Policy NE/3 Renewable Energy Technologies in New Development. These policies emphasise the need to increase energy efficiency measures, reduce carbon dioxide and incorporate renewable energy where possible to minimise resources required.

The natural environment is further considered in a number of policies as follows:

- Policy NE/4 Landscape Character Areas ensures the retention and where possible enhancement of the local character and distinctiveness of the Local Character Area.
- Policy NE/6 Biodiversity states that new development should maintain, enhance, restore or add to biodiversity by ensuring that opportunities to enjoy and experience nature are explored therefore providing economic and social benefits and improved public access to nature.
- Policy NE/7 Sites of Biodiversity or Geological Importance emphasises that new development should not adversely impact on those sites.
- Water and Flooding is protected in Policy NE/8 Groundwater, Policy NE/9 Drainage and Infrastructure and Policy NE/11 Flood Risk.

- Policy NE/12 Water Conservation highlights the need for the incorporation of water conservation measures in development proposals in order to minimise impacts on the water environment and biodiversity.
- Policy NE/14 Lighting Proposals also highlights the need for external lighting to minimise light spillage whilst providing adequate lighting for public safety and security.
- Policy NE/15 Noise Pollution ensures that there should be minimal impacts from noise on environments and tranquillity and that measures to control adverse impacts are in place where necessary.
- Policy NE/16 Emissions emphasises that air pollutants that contribute to effects on health and the environment should be minimised.

Shop fronts must be in accordance with Policy CH/9 Shop Fronts so that they are in character with the street. Northstowe itself is referenced stating that *'in major new developments like Northstowe new town and the urban extensions to Cambridge the emphasis will be on creating a quality and vibrant environment'*.

Travel is incorporated in Policy TR/1 Planning for More Sustainable Travel which highlights the need for sufficient accessibility and investment in public and community transport to offer and appropriate choice of transport on a range of modes, particularly non-motorised modes.

Efforts should also be made in accordance with Policy TR/3 Mitigating Travel Impact to reduce impacts on the environment, amenity and health. There should be adequate provision for integrating and improving transport infrastructure that contributes to the wider area and supports public transport, cycling and walking. Policy TR/4 Non-motorised Modes further emphasises support for the increased use of non-motorised modes of transport and new developments should ensure that this is designed into the scheme. Furthermore it has been stated that new routes should form safe, highly accessible convenient connections to Cambridge, Northstowe and the surrounding towns and existing network.

A3.3 Northstowe Area Action Plan

The Northstowe Area Action Plan (adopted July 2007 by South Cambridgeshire District Council) sets an overall vision for the new town and a series of policies and proposals to guide all phases of development. The key aims are to provide an active, safe and health community where residents can contribute to community life through voluntary and community organisations in conjunction with quality homes, good access to services for all sections of the community and a prosperous district where jobs, skills and learning are developed and sustained to benefit everyone.

The character and design of the town will be developed in accordance with Policy NS/2 Development Principles 'as a balanced, viable and socially inclusive community where people can live in a healthy and safe environment, and where most of their learning needs are met'. Health facilities, community and social infrastructure are particularly important and provision has been made for these in the Area Action Plan. Policy NS/3 The Site for Northstowe, Policy NS/5 The Town

Centre and Policy NS/6 Local Centres also require that provision is made for a range of easily accessible health facilities, community and social infrastructure.

Policy NS/7 Northstowe Housing requires well designed, high quality housing with a good mix of size, types and tenures include affordable housing to meet the needs of all ages and sectors of society including those with disabilities.

Planning applications will need to demonstrate how employment will encourage the development of a mixed economy to support a socially inclusive community in accordance with Policy NS/8 Northstowe Employment.

Policy NS/9 Community Services, Facilities, Leisure, Arts and Culture highlights the requirement for public, community and voluntary contributions to the delivery of services and facilities (such as schools, health and community facilities) in order to establish a sustainable community. All services and facilities should be easily accessible and their delivery should be phased such that needs of the population are assessed and key services are delivered in the early phases of the development.

One of the key objectives for transport is to 'develop an improved rights of way network to support sustainable transport, recreation and health, and to connect the town to neighbouring villages and the open countryside'. Policy NS/11 Alternative Modes requires the delivery of alternative transport modes to serve all stages of the development, particularly referencing good linkages to non-motorised modes and high quality public transport including subsidies for new residents on the guided busway to encourage usage.

The need for a high quality, well landscaped environment is highlighted in Policy NS/12 Landscape Principles, Policy NS/13 Landscape Treatment of the Edges of Northstowe and Policy NS/20 Countryside Recreation. The importance of connecting green spaces, the new town and wider countryside is emphasised and a network of green spaces and landscaped areas would contribute to informal recreation and amenity whilst benefiting biodiversity. This is further supported by Policy NS/14 Landscaping within Northstowe which outlines that the creation of open spaces and a series of green corridors will be valuable for landscaping, biodiversity, recreation and amenity whilst providing a safe network of road and bus crossings through the corridor for both people and wildlife.

The requirement for town parks, sports facilities, children's play areas and youth facilities is stated in Policy NS/19 Public Open Space and Sports Provision. It is particularly important to incorporate these facilities so that sports, leisure recreational needs can be met and residents can lead a healthy lifestyle and enjoy a high quality of life.

Policy NS/23 An Exemplar in Sustainability requires that sustainability, including energy efficiency measures is at the forefront of the development. It is highlighted that the boundaries of proven technology should be pushed so that sustainability issues are fully addressed and environmental impacts are minimised. This is further supported by Policy NS/26 Making Use of Existing Buildings/Resources on Site which requires the recycling of building materials, use of raw materials currently available on site and re-use of existing buildings in order to minimise the resources used in the construction of the proposed development.

A comprehensive construction strategy is required in accordance with Policy NS/24 Construction Strategy. The strategy should cover all phases of development so as to reduce effects of transport, construction activities and methods that could potentially lead to air quality, noise and vibration, contamination and traffic issues that would adversely impact the local community.

On-going consultation with existing and emerging communities in the development of services, facilities, landscape and infrastructure is emphasised in Policy NS/27 Management of Services, Facilities, Landscape and Infrastructure. This is to ensure that services, facilities, infrastructure and landscape is effectively implemented, managed and maintained in order to provide long-term community benefits whilst avoiding fragmentation.

A3.4 Health Impact Assessment Supplementary Planning Document

South Cambridgeshire District Council has provided the Health Impact Assessment Supplementary Planning Document (SPD) as it is 'a material consideration in the determination of planning applications'. The SPD seeks to provide guidance on undertaking HIA and to ensure that the creation of healthy and inclusive communities and that health impacts are adequately addressed during throughout the development process. The SPD is aimed at achieving Development Control Policies Objective DP/e to:

'ensure that major new developments create distinctive, sustainable and healthy environments to meet the needs of residents and users, and contribute towards the creation of vibrant, socially inclusive communities.'

It references the need for prospective (forward looking) HIAs done at a time when it is possible to influence and change the development if necessary. It also highlights that it may be necessary for the submission of more than one HIA, for example one at an outline planning stage and one at the reserved matters stage, as was necessary for Northstowe.

The SPD states that a HIA should:

- *'Appraise the potential positive and negative health and wellbeing impacts of the proposed development on planned new communities and the adjacent existing communities in the development area.'*
- *'Highlight any potential differential distribution effects of health impacts among groups within the population by asking 'who is affected?' for the impacts identified.'*
- *'Suggest actions / mitigations that aim to minimise any potential negative health impacts and maximise potential positive health impacts, referencing where possible the most affected vulnerable group(s).'*

The consideration of health determinants at the planning and design stages is particularly important as it can improve the physical and mental health of a population and contribute to sustainable planning, good design and the development of community resources. Furthermore it can also encourage a physical environment that:

- increase people's sense of safety and wellbeing;
- provide opportunities for social interaction and community connectivity;
- improve air quality;
- conserve water; and
- promote active travel and physical activity.

It is also important to consider the impacts on the social environment such as community wellbeing, social norms and values, the quality, content and volume of interpersonal interactions within and between urban and rural areas, deprivation levels and health inequalities.

Although there is no statutory framework for carrying out a HIA, the SPD recommended the following outline for the production of HIA which is subsequently reviewed against specified criteria:

- **Screening** – deciding whether undertaking a HIA is the best way to ensure health and equity issues are effectively addressed.
- **Getting the HIA team together** – deciding on the most appropriate team members that would provide different perspectives and expertise.
- **Scoping** – deciding how to undertake the HIA.
- **Assessment** – identifying and considering a range of evidence for potential impacts on health and equity.
- **Developing recommendations** – formulating and prioritising specific recommendations based on the best available evidence.
- **Make recommendations** – including recommendations to adjust the proposed development and make other changes that would improve the consequences of the proposed development.
- **Ongoing monitoring and evaluation** – assessing if any of the specific HIA recommendations, where implemented as part of the proposed development, to review if they contribute to positive effects on health and equity and if not, to review and consider the reasons for the success or failure.

Appendix B

Community profile

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B1 Existing and future community profile

B1.1 Introduction

This section provides a summary of the communities within the assessment area likely to be directly and indirectly affected during the construction and operation of the proposed development.

B1.2 Existing Demographic profile

B1.2.1 Population and population density

According to the 2011 Census South Cambridgeshire has a population of 148,755 and covers an area of 90,163 ha. The district is predominantly rural and it has a relatively low population density of 1.6 persons per ha which was comparable to the neighbourhood (1.8 persons per ha). This contrasts greatly with the regional (3.1 persons per ha) and national figures (4.1 persons per ha).

The LSOAs in the assessment area also have a similarly low population density, however there are distinct differences between them. The resident population and population density is higher in Longstanton (2,657 residents and 2.4 persons per hectare) than Oakington (1,527 residents and 1.7 persons per hectare).

B1.2.2 Age profile

The age profile is distinct among each of the geographical extents in the assessment area as shown in Figure 1. In general the predominant age groups are children between 0-16 years and the population over 23 years of age. The proportion of the student age population between 17-22 years is well below the national average for the assessment area.

There are particularly contrasting figures within the LSOAs in terms of the population of working age and the elderly. There is a contrast between proportion of the population between 23-65 years (Oakington has 57.6% and Longstanton has 61.9%), however both percentages remain above the regional and national average. The proportion of the population over 66 years of age also varies greatly between Oakington (15.8%) and Longstanton (12.4%).

People in South Cambridgeshire are living longer than before and the JSNA for Older People²³ outlines that the number of frail older people is increasing.

²³ NHS Cambridgeshire & Cambridgeshire County Council (2010) Joint Strategic Needs Assessment for Older People Cambridgeshire

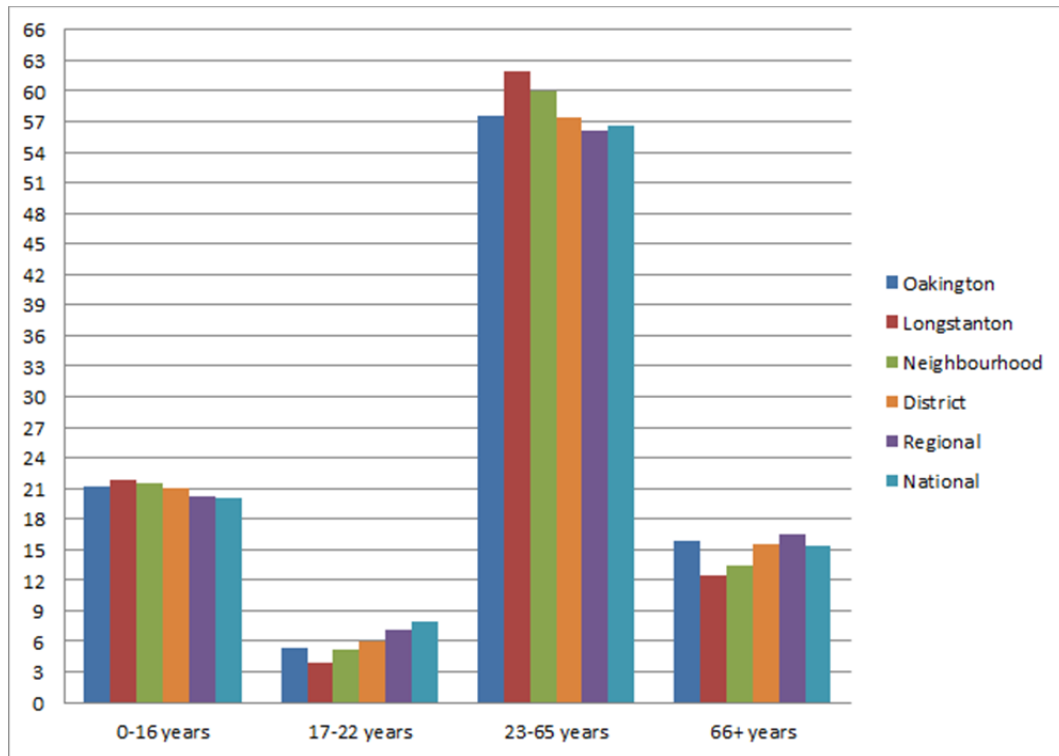


Figure 1: Age profile for the LSOAs, MSOA, region and nation

B1.2.3 Migration

A JSNA report²⁴ on migrant workers states that South Cambridgeshire was the least popular destination for migrant workers in Cambridgeshire. When comparing the country of birth in the 2011 Census data, the figures generally align with the regional and national averages. There are a few notable differences between the LSOAs. The proportion of the population born in England is 5% higher in Oakington when compared with Longstanton. The proportion of the population born in European countries (other than the UK and Ireland) is 3% higher in Longstanton when compared with Oakington.

B1.2.4 Ethnicity

The 2011 Census shows that ethnic diversity in the assessment area is quite limited in terms of ethnicity when compared with the national average as shown in

Table 3. The population is dominated by people of a white ethnic background of which the majority are white British.

²⁴ NHS Cambridgeshire & Cambridgeshire County Council (2009) Joint Strategic Needs Assessment for Migrant Workers in Cambridgeshire

Table 3: Ethnicity (%) in the assessment areas

	White	Mixed/ multiple ethnic groups	Asian/ Asian British	Black/ African / Caribbean/ Black British	Other
England	85.8	2.2	8.2	3.4	1
East of England	90.9	2	5.3	2	.5
South Cambridgeshire	93.2	1.7	3.7	0.9	0.4
Neighbourhood	94.3	1.8	2.8	0.7	0.4
Longstanton	92.4	2.1	4.5	0.9	0.2
Oakington	95.8	1.4	2	0.4	0.5

Minority groups are under-represented as only 6.8% of the population in South Cambridge are in minority groups, compared to 14.2% of England as a whole. This is particularly evident for the Asian/ Asian British and Black/ African / Caribbean / Black British populations which are well below the national average.

It should be noted that the proportion of the population in South Cambridgeshire classified as gypsy or Irish traveller (0.3%) is three times that of the national average. The latest estimates state that the region has approximately a quarter of all caravans in the country. Of these, 20 are considered 'not tolerated' and are located on sites without planning permission that are owned by gypsies²⁵.

B1.2.5 Family Structure

The family structure is generally quite consistent throughout the assessment areas. All assessment areas up to and including the district level have higher proportions of one family households (about 70%) and lower proportions of one person households (just under a quarter of all households) in comparison to the national average.

Married couples represent just under half of the total households in the assessment areas and the proportion of cohabiting couples and lone parents are lower than the national averages.

The most common family structures in the assessment area (up to district level) are to have no children (approximately 17% of households), two or more dependent children (approximately 12% of households), one dependent child (approximately 8%) and no dependent children (approximately 6%).

²⁵ Department of Communities and Local Government (2010) Count of Gypsy and Traveller caravans in 2010 available at: <https://www.gov.uk/government/publications/gypsy-and-traveller-caravan-count-january-2010>

There were very little differences between the family structures in Oakington and Longstanton. Generally, the area is dominated by families and cohabiting couples which represent at least four fifths of all households. There are low proportions of lone parents and other household types and just two same sex civil partnerships recorded in Longstanton.

B1.2.6 Socio-economic classification

The socio-economic classification provides an indication of the number of individuals in more vulnerable socio-economic groups. It can also be indicative of the economic activity in the area.

Economic activity is high in the area and it is estimated that 84% of the working age population (between 16-64 years) are economically active in South Cambridgeshire²⁶ which is much higher than the regional (79.6%) and national (64.7%) figures.

Table 4: Profile (%) of the economic activity in the assessment area

	Employee	Self-employed	Full time student	Unemployed	Economically inactive
England	52.3	9.8	5.8	4.4	30.1
East of England	54.3	10.5	4.6	3.8	28.4
South Cambridgeshire	59.5	11.6	4.0	2.3	23.8
Neighbourhood	63.8	11.5	2.6	2.2	20.0
Longstanton	65.4	10.4	2.3	2.2	19.8
Oakington	60.9	13.0	2.6	3.0	20.5

The high rates of employment in the district support high levels of economic activity. In terms of those employed in the LSOAs, it should be noted that Oakington has a slightly higher proportion of self-employed individuals and Longstanton has a slightly higher proportion of employees.

There is a smaller proportion of full time students and unemployed individuals in the area in comparison to the regional and national averages. It is also important to note that two thirds of those that are economically inactive are either retired or full-time students. The percentage of the economically inactive population which looks after the long-term sick or disabled is also much lower in the area than the regional and national averages.

²⁶ South Cambridgeshire District Council (2013) South Cambridgeshire Area Profile Key Statistics January 2013 available at: <https://www.scambs.gov.uk/sites/www.scambs.gov.uk/files/documents/Key%20statistics%20January%202013.pdf>

As a result, the proportion of Job Seeker’s Allowance (JSA) Claimants in South Cambridgeshire population was 1.9% lower than the national average and over two thirds of the claimants were claiming for six months or less²⁷.

Generally this means that there were less vulnerable socio-economic groups in the LSOAs, the MSOA and South Cambridgeshire.

When comparing the occupational structure of the area it becomes evident that there is a very high proportion of the employed population within higher managerial, professional and technical roles in comparison to the regional and national averages. This aligns with the much lower proportion of the population employed in less skilled elementary and operative roles when compared with the regional and national average.

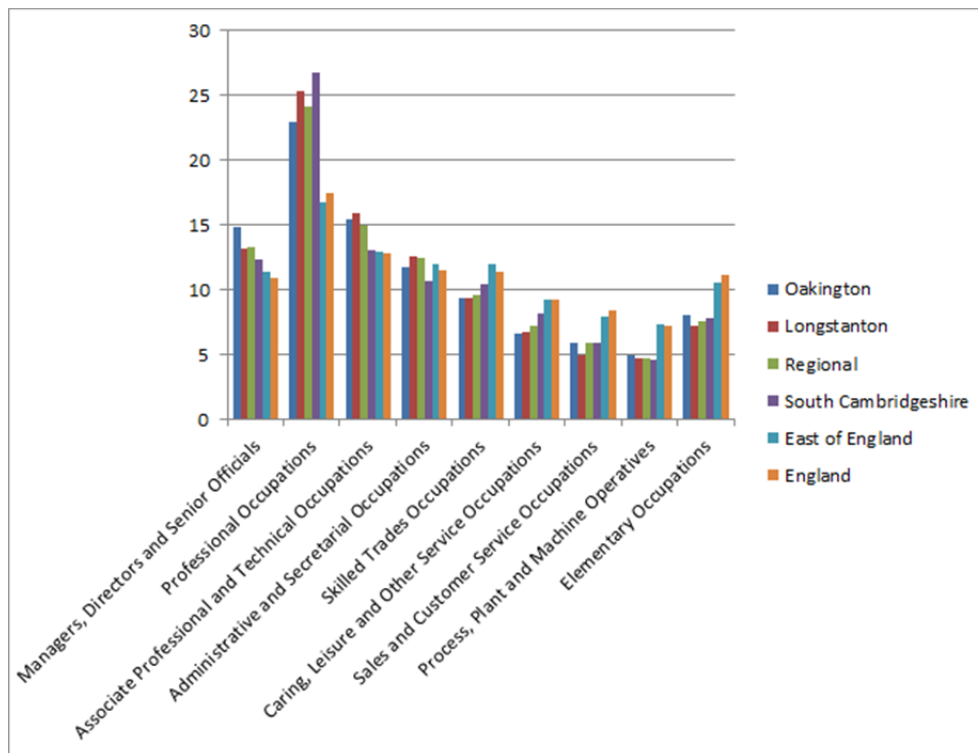


Figure 2: Employment (%) by occupation in the assessment area

Income is also much higher in South Cambridgeshire than the regional and national average. It is estimated²⁶ that residents earn £104.8 pounds more gross weekly pay than the national average.

²⁷ NOMIS (2014) South Cambridgeshire Labour Market Profile available at <https://www.nomisweb.co.uk/reports/Imp/la/1946157209/report.pdf>

B1.3 Index of Multiple Deprivation

The English index of multiple deprivation (IMD) 2010 measures relative levels of deprivation at LSOA level, and is made up of seven 'domains' of deprivation:

- income;
- employment;
- health and disability;
- education;
- skills and training;
- barriers to housing and services;
- crime; and
- living environment.

Deprivation is generally low in the assessment area. South Cambridge is ranked as the fourth least deprived district level local authority (in terms of average score based on all seven domains) in the country²⁶. However, it is estimated that about 8.8% (2,500) children live in poverty in South Cambridgeshire³².

When looking at poverty in the LSOAs Oakington is ranked 27,558 and Longstanton is ranked 28,744 out of 32,482 LSOAs in the country (where 32,482 is the least deprived). The overall 'IMD Score' and ranking confirms that Oakington is slightly more deprived than Longstanton.

Oakington has higher levels of deprivation for crime, income and health deprivation and disability. Longstanton in contrast has higher levels of deprivation for barriers to housing and services and employment.

B1.4 Existing Health Profile

The 2011 Census, the South Cambridgeshire Area Profile²⁶ and the SCDC Joint Strategic Needs Assessment (JSNA) for New Communities²⁸ and the 2013/14 JSNA²⁹ have provided comprehensive analysis of the health profile of the local community. The profiles help local government and health services to understand the local community needs and priorities and enable a snapshot of health across South Cambridgeshire to be captured.

The health priorities for South Cambridgeshire have been highlighted in the recent JSNA³⁰ and this includes supporting the independence of older people,

²⁸ NHS Cambridgeshire & Cambridgeshire County Council (2010) Joint Strategic Needs Assessment New Communities 2010

²⁹ Cambridgeshire County Council & NHS Cambridge & Peterborough Clinical Commissioning Group (2014) Cambridgeshire Joint Strategic Needs Assessment 2013/14

³⁰ NHS & South Cambridgeshire District Council 2014 Joint Strategic Needs Assessment

ensuring access to mental health services and creating a healthy environment through new housing development.

B1.4.1 Self-rated health

Data from the 2011 Census reveals that self-rated health was high in the assessment area. There was generally a much higher proportion of the population rating their health as 'very good' or 'good' in comparison to those who rated their health as 'bad' or 'very bad'.

Table 5: Self-rated health profile of the assessment area in comparison to the regional and national average

	Very good	Good	Fair	Bad	Very bad
England	47.2	34.2	13.1	4.2	1.2
East of England	47.2	35.2	12.9	3.6	1.0
South Cambridgeshire	52.5	33.7	10.6	2.5	0.7
Neighbourhood	53.6	34.2	9.3	2.1	0.7
Longstanton	52.9	34.9	9.4	2.1	0.7
Oakington	53.8	34.3	9.4	2.0	0.5

The self-rated health also identified that the numbers rating their health as 'very good' in the LSOAs was much higher than the national average and the numbers rating their health as 'very bad' in the LSOAs was much lower than the national average.

B1.4.2 Indices of Deprivation health and disability

Health deprivation and disability is one of the seven domains used to determine the overall IMD Score for the LSOAs. This domain measures premature death and the impairment of quality of life by poor health. It considers both physical and mental health. The domain measures morbidity, disability and premature mortality but not aspects of behaviour or environment that may be predictive of future health deprivation.

Oakington and Longstanton are among the least deprived LSOAs in the country. Oakington has slightly higher levels of deprivation in terms of health and disability deprivation. They have a health and disability deprivation ranking of 25,787 and 31,441 respectively out of 32,482 LSOAs (where 32,482 is the least deprived).

B1.4.3 Life expectancy

Life expectancy in South Cambridgeshire is high. Life expectancy for males and females both at birth and at age 65 are significantly better than the average for England and Wales³².

The infant mortality rate is less than, but not significantly different from the England average.

It has been identified³¹ some inequalities in life expectancy as at birth, females in the district are expected to live 2.9 years longer than males. This is gender difference in similar to the national figures.

Life expectancy is also 3 years lower for men in the most deprived areas of South Cambridgeshire than in the least deprived areas³².

B1.4.4 Rates and incidence of disease

All-cause early death rates (for individuals under 75) for both men and women and early death rates from heart disease and stroke and from cancer in South Cambridgeshire are lower than the England average. In all cases the early death rates have also been decreasing during 2002-2011 as shown in Figure 3.

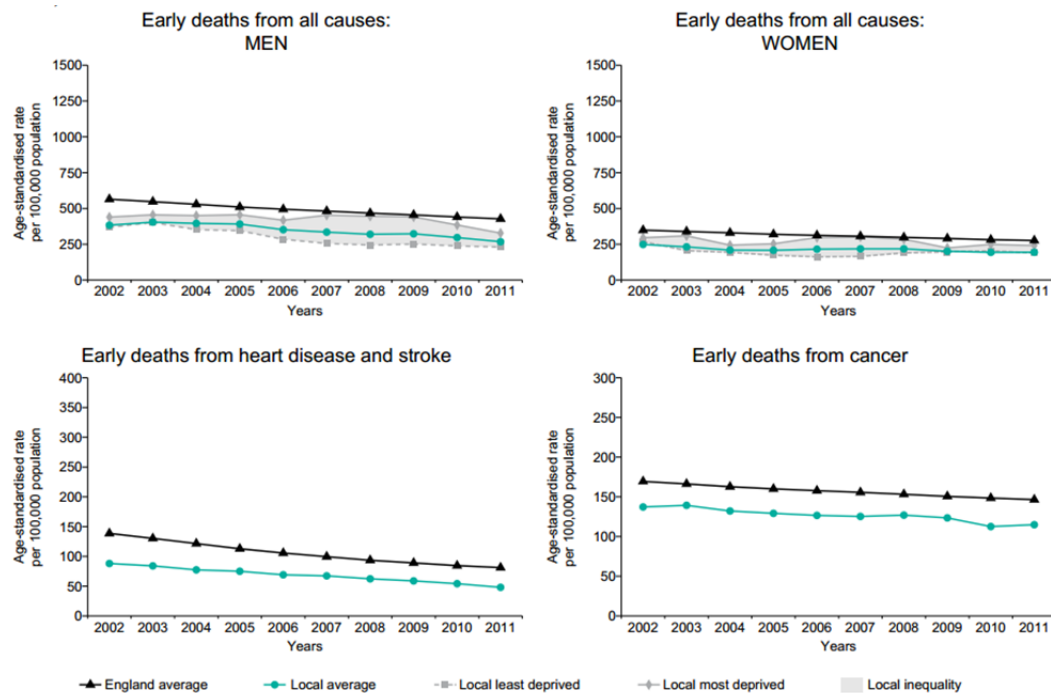


Figure 3: Rates of early deaths from all causes for both men and women and from disease including heart disease, stroke and cancer in 2002-2011²⁶

The early death rates from all causes also shows the differences between the most deprived and the least deprived quintile within the district during the last decade.

³¹ ONS (2012) Life expectancy at birth and at age 65 for the UK and local areas | England and Wales, 1991-93 to 2010-12 available online at: <http://www.ons.gov.uk/ons/publications/reference-tables.html?edition=tcn%3A77-354758>

³² Public Health England (2014) South Cambridgeshire District Health Profile 2014

It should be noted that there were more early deaths from cancer than heart disease in South Cambridgeshire during the decade. Furthermore the incidence of new cases of malignant melanoma in the district is significantly worse than the England average³².

B1.4.5 Disability living allowance claimants

Disability Living Allowance (DLA) is payable to people who are aged under 65 years, are disabled and who have personal care needs, mobility needs, or both.

South Cambridgeshire and the LSOAs have lower proportions of the population registered as claimants in comparison to the national average. There is however double the amount of DLA claimants in Longstanton (80 claimants) in comparison to Oakington.

This would be important for consideration to ensure that Northstowe is accessible for the local community.

B1.4.6 Physically active adults

The percentage of the adults (62.7%) which are physically active and undertakes at least 150 minutes of physical activity per week was significantly higher than the national average (56%)³³.

B1.4.7 Road injuries and death

The rate of people killed or seriously injured on the roads in South Cambridgeshire was significantly worse than the national average. It is estimated that there were approximately 184 deaths during 2010-2012 and there were over 20 more deaths per 100,000 population than the national average during the same period³².

B1.4.8 Healthy eating and obesity

There is very little information available on the healthiness of foods consumed in the assessment area. The model based estimate for the consumption of fruit and vegetables³⁴ estimated that approximately 34% of the adults in the district consume their 5+ daily fruit and vegetables allowance.

³³ Public Health England & Sport England (2013) Active People Survey 6 available at: http://www.sportengland.org/research/active_people_survey.aspx

³⁴ ONS (2007) Healthy Lifestyle Behaviours: Model Based Estimates 2003-2005 available at: <http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=5&b=6279033&c=south+cambridgeshire+003&d=140&e=6&g=6406571&i=1001x1003x1004&m=0&r=1&s=1404827123840&enc=1&dsFamilyId=969>

Obesity levels in children and adults for the district is significantly better than the national average³², however the proportion of overweight adults is higher than the national average³⁵.

B1.4.9 Healthy lifestyles

The 2014 Health Profile for South Cambridgeshire highlighted that adult's healthy lifestyles are generally better than the national average. Hospital stays for alcohol related harm, drug misuse for those aged 15-64 and smoking related deaths are all significantly better than the national average.

This has filtered through to the younger population who also portray healthier lifestyles in comparison to the national average. The rate of alcohol-related stays for those under 18 was also better than the national average, representing 7 stays per year. Levels of teenage pregnancy, GCSE attainment and breastfeeding are also better than the national average.

B1.4.10 Mental wellbeing

The Community Mental Health Profile for Cambridgeshire and Peterborough³⁶ highlight that the prevalence of depression, anxiety and mental health problems in the area are lower than the national average.

When examining the assessment area evidence³² was provided for South Cambridgeshire. Hospital stays for self-harm in the district were slightly worse than the national average. It is estimated that there were 282 stays per year. The suicide rate was slightly lower than the national average.

A3.5 Vulnerable Groups

The following groups within the assessment area have been identified as being particularly vulnerable to negative health effects (see Appendix C for the evidence base):

Ethnic minority groups: Ethnic minority groups suffer elevated levels of unemployment, poor health and poverty. The community profile indicates that there is low ethnic diversity in the assessment area, however there is a very high proportion of white travellers and gypsies. Health statistics³² identify that there is a high number of high emergency admissions for certain ethnic minority groups, including black, other and unknown ethnicities. This evidence suggests that some patients may not have access to the facilities and healthcare most suited to their conditions.

³⁵ Public Health England (2012) Active People Survey excess weight data for Public Health Outcomes Framework

³⁶ Available at: <http://www.nepho.org.uk/cmhp/>

Low-income / low-socio-economic groups: Differences in social grade and socio-economic status are linked to health inequalities. Often the poorest people experience the poorest quality outdoor environments³⁷ and suffer disproportionately from a lack of equitable access to green spaces, transport and therefore suffer disproportionately from poor access to services and facilities and a lack of public transport. They are also more likely to suffer disproportionately from diet-related diseases.

Children: The proportion of children in the population is high in comparison to the national average and there are an estimated 2,500 children living in poverty in South Cambridgeshire³². This group can often suffer low self-esteem, lack of access to education and resources to fully engage in learning and may suffer from health problems which further affects their learning leading to them falling behind their more affluent peers. Children and babies are also more likely to suffer from negative health effects associated with noise, air quality and transport-related injury and death.

B1.5 Projected profiles for Northstowe

B1.5.1 Introduction

The projections for 'Reference Case Northstowe' have been established in research undertaken as part of the Northstowe Economic Development Strategy³⁸. In general it is expected that Northstowe would be a mirror of the Cambridge / South Cambridgeshire sub-region, however the economy and future growth would be inextricably linked to and function as part of the sub-regional economy, with strong links with the Cambridge economy.

B1.5.2 Demographic projections

The Northstowe Economic Development Strategy has produced the socio-economic characteristics for the Northstowe community. In total there would be 9,500 additional dwellings created in Northstowe by 2040. The strategy has identified that the dwellings would be delivered in a number of phases as outlined in Figure 4.

³⁷ WHO (2012) Addressing the social determinants of health: the urban dimension and the role of local government

³⁸ Ref TBC

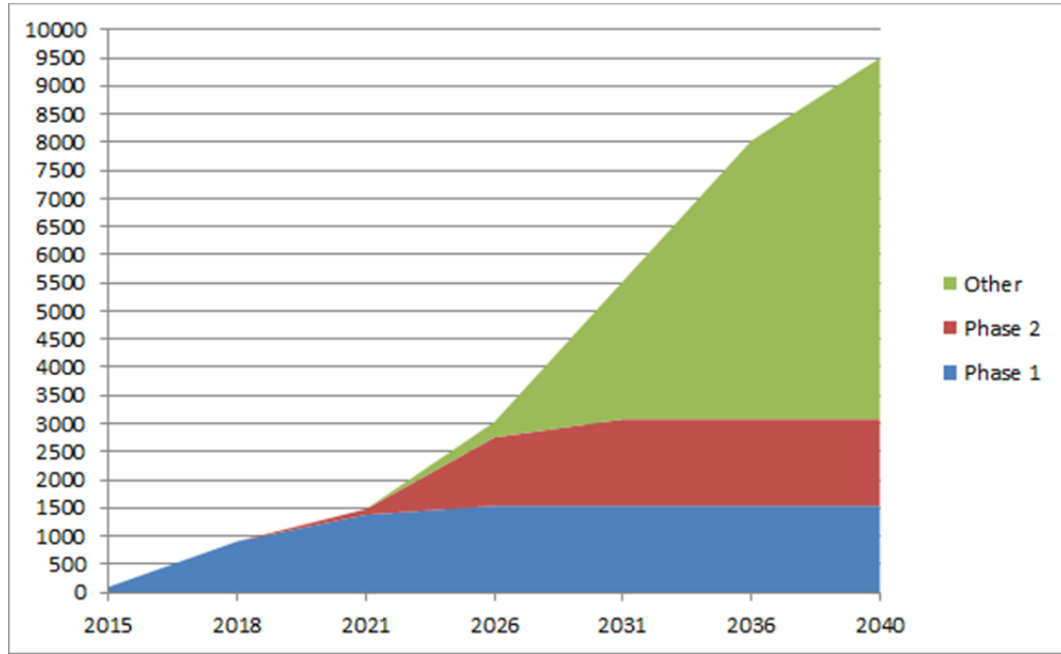


Figure 4: Cumulative number of dwellings in Northstowe by phase of development

The same study has also used a smoothed construction programme, population projections for the Study Area³⁹ and district-wide population projections by age⁴⁰, to establish an understanding of the likely age profile and growth trajectory of Northstowe. This is outlined in Figure 5.

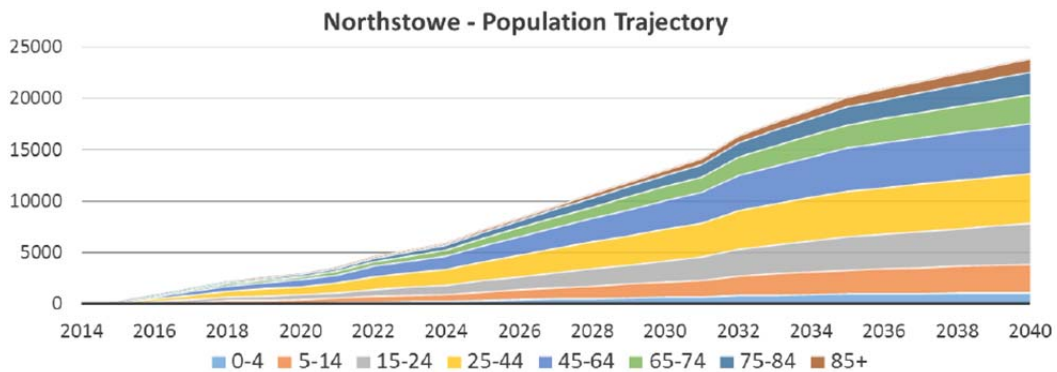


Figure 5: Northstowe population trajectory by age group as established in the Northstowe Economic Development Strategy

³⁹ East of England Forecasting Model (EEFM) (Baseline Variant Occupancy Ratios, Spring 2013)

⁴⁰ Population Projections, Cambridgeshire County Council Research and Performance Team, Summer 2013 - includes considerations for Census 2011 reporting.

Based on this trajectory, key milestone dates for projected town population benchmarks are as stated in Table 6. This includes Phase 2 and later phases of the Northstowe Development.

Table 6: Northstowe population trajectory and key milestone dates as stated in the Northstowe Economic Development Strategy

Date	Dwellings	Milestone	Persons aged 0-14	Persons aged 15-74	Persons aged over 75
2019	1,070	Population exceeds 2,500	400	1,950	200
2023	2,200	Population exceeds 5,000	900	3,850	500
2028	4,350	Population exceeds 10,000	1,850	7,700	1,250
2032	6,530	Population exceeds 15,000	2,800	11,600	2,050
2035	8,030	Population exceeds 20,000	3,400	14,100	2,700
2040	9,500	Population exceeds 23,900	3,950	16,450	3,500

Based on these assumptions Northstowe would have a total population in 2040 of 23,900 of which 16,450 individuals would be of working age (15-74). The anticipated demographic change assumes that the proportion of working-age population to overall population would steadily decrease between the years, driving by longer-term trends of an ageing population, migration and lower rates of workforce replenishment.

These projections suggest that the total number of persons per dwelling would vary. In 2018 there would be 242 persons per dwelling in Northstowe rising to 252 persons per dwelling in 2040. In reality the lag time between housing construction and occupancy may alter this profile, as would a more refined construction programme.

Northstowe's population change is driven by a range of demographic factors including natural and migratory changes. Although these are accounted for, the market factors which could also influence the demographic profile are not.

B1.5.3 Labour market profile

The labour market profile based on the EEFM figures³⁹ show that Northstowe would be a fully developed town with the broad labour market dynamics as stated in Table 7.

Table 7: Labour market projections for Northstowe as outlined in the Economic Development Strategy

	2019	2023	2028	2032	2035	2040
Total population	2,590	5,280	10,740	16,420	20,200	23,900
Working age population (16-74 years)	1,950	3,820	7,700	11,600	14,100	16,450
Employed (Employees and self-employed)	1,310	2,160	5,260	8,010	9,820	11,550
Self-employed	240	480	960	1,450	1,780	2,080
Employment (Workplace based ⁴¹)	1,070	2,640	4,300	6,560	8,050	9,470
Employment (Residence based ⁴²)	1,370	2,720	5,370	8,130	9,860	11,400
Employment rate	70.6%	70.5%	70.3%	70.1%	69.9%	69.4%
Net commuting (Northstowe)	-290	-630	-1,070	-1,590	-1,900	-2,130
Unemployment	30	60	110	160	170	231
Unemployment rate	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%

The labour market profile portrays Northstowe as a source of employment for the town's working age population, assuming that a proportion of its population would not be economically active. It assumes that there would be a mix of employed and self-employed workspaces, some of which would be home based.

Despite this capacity, there would be a reasonably high level of net out-commuting of residents. The town would therefore be self-contained to an extent but commuting in and out of Cambridge would be supported by the guided bus and improved A14. This trend, coupled with town based employment, would help to keep resident unemployment low (1.3%) over the period.

By 2023, there would be 2,160 jobs based within the town, from a mix of workplace based jobs and self-employed individuals. 70.5% of Northstowe's resident working age population would be in employment within or beyond the town.

By 2032, the town would support 8,010 jobs either in workplaces or through self-employment. Its workforce size would be slightly higher than its resident based employment, but a proportion of its residents would be in employment beyond the town.

⁴¹ Workplace based employment measures those individuals working within the town, living within or beyond the town

⁴² Resident based employment measures those living within the town who would be in employment either within or beyond the town

By 2040, the town would support 11,550 jobs (employees and self-employed). Employment would remain relatively high, with 70% of working-age residents in employment. A mix of town based employment provision and net out-commuting would help keep unemployment low at 1.4%.

B1.5.4 Occupation profile and employment sectors

The Economic Development Strategy estimates that the population of Northstowe would be highly qualified and have a high employment rate, with most of the workforce employed in professional, managerial and technical occupations.

By 2040 it is estimated that the occupations in Northstowe would be dominated by three broad groups which collectively would account for 70% of the occupations for residents. With over 8,000 workers falling into these three groups, Northstowe would have almost 3,000 more residents in these higher order occupations than would be expected against national averages:

- Professional occupations – 41.4% of jobs would be in professional occupations, which is more than twice the average for England (19.8%).
- Managers, directors & senior officials – 17% of occupations would be in managerial positions. Again, this is significantly higher than the national average (10.3%).
- Associate professional & technical – 11.8% of occupations in the town would be in this group, which is slightly below the national average of 14.4%.

Conversely, the town would have significantly lower levels of occupations than would be expected nationally in the following occupations: Administrative and Secretarial; Skilled Trades; Sales and Customer Service; and Process, Plant and Machine Operatives.

There would be a diverse range of industries within the town itself, particularly in the public sector, professional & business services and retail, reflecting the town's role as a local service centre. Most economic activity in Northstowe would be there as a result of its clear association with Cambridge and high quality transport links. There would also be significant levels of self-employment.

Northstowe would have specialisms in Research and Development and technology related activities which, although supporting limited job numbers, complement the sub-regional performance in these sectors. Employment would be concentrated in the town centre and a number of peripheral employment areas, with the town centre supporting a mix of retail, leisure, professional service and public sector activities and employment areas accommodating a wider range of office and manufacturing uses.

Appendix C

Health evidence base

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C1 Housing quality and design

There has been a range of evidence presented for the effects of housing quality and design on health. A systematic review of housing interventions⁴³ concluded that high quality, well designed housing and improvements to the quality and design of housing can lead to health benefits.

There are also linkages between housing and other determinants of health such as educational attainment and crime and safety⁴⁴. The security of housing provides financial and social stability and research has identified the links between home ownership and health *'financially secure home ownership has been linked to improved health, which may be due to better housing quality and feelings of security'*⁴⁵.

The WHO have undertaken a comprehensive literature review for the effect of inadequate housing on health and interventions that have had positive impacts on health⁴⁶. The review has provided substantial evidence of housing conditions (such as household crowding, mould, dampness, lack of safety measures and exposure to pollutants) and related impacts on physical health. It states that *'Improving housing in a way that removes or at least minimizes the negative impact on health and safety and promotes a healthier living environment is good for the residents and beneficial for society.'*

This research supports previous WHO evidence⁴⁷ that identifies the positive effects of housing interventions related to quality and design. This research determines that improvements to mental health appear to be directly related to the extent of the housing improvement and physical health benefits such as the alleviation of respiratory conditions related to improved energy efficiency measures.

Research has also shown a strong independent association between housing conditions and health, particularly poor housing and poor health⁴⁸. Recent research⁴⁹ suggests that poor housing is associated with a range of health problems including cardiovascular diseases, respiratory diseases, neurological, cognitive and mental health issues including depression and anxiety. This is linked to conditions of cold, damp, mould and structural defects, infestations and toxins such as lead, carbon monoxide, formaldehyde, asbestos and radon⁵⁰.

43 Thomson H, Thomas S, Sellstrom E (2009) The health impacts of housing improvement: a systematic review of intervention studies from 1887 to 2007 *Journal of Public Health* 99 p681–692.

44 Greater London Authority, 2005. 'Review of the London Health Strategy High Level Indicators'. London Health Commission.

45 Thomson, H. and Petticrew, M., 2005, Is housing improvement a potential health improvement strategy, World Health Organisation Europe

46 WHO (2011) Environmental burden of disease associated with inadequate housing

47 WHO (2005) Is housing improvement a potential health improvement strategy? Health Evidence Network (HEN) Synthesis Report

48 Thomson et al (2001) 'Health effects of housing improvement: systematic review of intervention studies'

49 Houses of Parliament (2001) Postnote 371, Housing and Health

50 Wales Health Impact Assessment Support Unit (2013) Housing and Health Evidence Review for HIA

There are a number of standards in place that set out the recommendations for the design of new homes such as the Code for Sustainable Homes, Lifetime Homes, Building for Life and Secured By Design and there is a good deal of overlap and cross-referencing for what is necessary to achieve good housing quality and design. A systematic review of improvements for health and socio-economic outcomes⁵¹ has identified that improvements to housing quality and design may be related to the changes in the physical fabric, the provision of equipment and educational interventions to reduce domestic injuries therefore contributing to positive impacts on health and wellbeing.

Vulnerable Groups

The elderly have been identified as a particularly vulnerable group at risk of health problems in low quality homes as a result of excess cold and accidents⁴⁹. They are more likely to suffer directly from injuries related to accidents and to suffer from ill health in damp, cold homes.

Children are also identified as a particularly vulnerable group as overcrowding, insecurity and poor physical conditions of housing in conjunction with fuel poverty can pose risks to their health and early development⁵². A study by Shelter⁵³ identified that children living in poor housing conditions are more susceptible to mental health problems, such as anxiety and depression, to contract meningitis, more likely to have respiratory problems, experience long-term ill health and disability, experience slow physical growth and have delayed cognitive development.

51 Thomson et al (2013) Housing Improvements for Socio-economic outcomes: A systematic review, Campbell Systematic Reviews

52 National Children's Bureau (2012) Environmental inequalities and their impact on the health outcomes of children and young people

53 Harker L (2006) Chance of a lifetime: The impact of housing on children's lives. London: Shelter.

C2 Access to healthcare services and other social infrastructure

Services and social infrastructure such as healthcare, education, social networks and social interaction can be inclusionary or exclusionary, thereby impacting on people's physical and mental health⁵⁴. It has been found that access to public services and social infrastructure such as health, education and community facilities has a direct positive effect on human health⁵⁵.

Recent evidence⁵⁶ has stated that the accessibility of local shops, community services and healthcare facilities may be affected by:

- effects on the capacity of existing services;
- physical accessibility (i.e. distances travelled and transport connections);
- social and/or cultural access (i.e. communication issues); and
- separation imposed by a new piece of physical infrastructure.

Research has suggested that *'access to local shops, post offices, places of entertainment and community activity all contribute to well-being'*⁵⁷. It has been estimated that 5% of adults in Great Britain reported feeling a sense of isolation due to difficulties accessing local shops and services⁵⁸. Furthermore the same research also reported that over a fifth of adults reported that they knew someone who felt a sense of isolation due to difficulties accessing local shops and services.

Everyone has a fundamental right to preventative health care and the right to benefit from medical treatment and there have been many recent initiatives to improve access to health services⁵⁹. Access to reach healthcare services is affected by the accessibility of transport modes, availability of financial support for those on low incomes and the location of healthcare services⁵⁸. Groups impacted by disability and of certain ages can also experience even greater barriers to health and social care services⁶⁰. Access to healthcare is important for communities as healthcare offers information, screening, prevention and treatments. Restricted access to healthcare prevents patients gaining necessary treatments and information.

54 Global Research Network on Urban Health Equity (2010) Improving urban health equity through action on the social and environmental determinants of health

55 HUDU (2013). HUDU Planning for Health. Rapid Health Impact Assessment Tool. (NHS) London Healthy Urban Development Unit

56 Quigley, R. and Thornley, L., 2011, Literature Review on Community Cohesion and Community Severance: Definitions and Indicators for Transport Planning and Monitoring, Report to New Zealand Transport Agency, Quigley and Watts Ltd

57 Harding, T., 1997, A Life Worth Living: the Independence and Inclusion of Older People, London: Help the Aged, cited in Randall, C., 2012, Measuring National Well-being – Where we Live, 2012, Office for National Statistics

58 Randall, C., 2012, Measuring National Well-being - Where we Live – 2012, Office for National Statistics

59 Commission of the European Communities (2009) Solidarity in health: Reducing health inequalities in the EU

60 Hamer, L., 2004, Improving patient access to health services: a national review and case studies of current approaches, Health Development Agency

Educational attainment is inextricably linked to employment, income and housing opportunities and the associated health effects, as well as having its own effect on psycho-social health. Research⁶¹ suggests that higher levels of education contributes to a greater knowledge of health conditions and treatment, an increased likelihood to engage in healthy behaviours and a decreased likelihood in adopting unhealthy habits particularly in relation to physical activity, diet, smoking and sexual activity. Recent findings also illustrate the powerful effects of learning on health and wellbeing for adults. The findings⁶² identified that those attending adult education courses display a greater awareness of health issues than others their age, and an estimated 116-134 cancers for every 100,000 women enrolled in adult learning in the UK, could be prevented by a greater uptake of cervical smear tests.

Access to social infrastructure including leisure and cultural facilities is a determinant of health and wellbeing. According to research *'leisure activities can have a positive effect on people's physical, social, emotional and cognitive health through prevention, coping (adjustment, remediation, diversion), and transcendence'*⁶³. People participate in cultural activities for a number of reasons including personal growth and development, to learn new skills, enjoyment and entertainment and as a *'means of creative expression'*, or *'to meet new people'* and to *'pass on cultural traditions'*⁶⁴.

Vulnerable groups

Long-term illness sufferers, the disabled and the elderly are the most vulnerable group which are likely to suffer from a lack of local healthcare services as they are less likely to access services outside the vicinity.

Children are the most vulnerable group in terms of access to educational services and this greatly influences their health outcomes. School can provide greater opportunities in later life and the provision of health promoting behaviours and activities in schools can also encourage healthy behaviours.

Access to social infrastructure is also particularly important for the more deprived portion of the population as it can improve their quality of life which they may otherwise not be able to afford. This could lead to health, employment and social benefits that could balance the social gradient and improve social cohesion.

61 Institute of Public Health Ireland (2008) Health Impacts of Education: A Review

62 Centre for Research on Wider Benefits (2008) The social and personal benefits of learning: A summary of key research findings

63 Caldwell, L.L. (2005) Leisure and health: Why is leisure therapeutic?

64 New Zealand Government, 2007, Social Report: Leisure and Recreation, Ministry of Social Development, New Zealand Government

C3 Access to open space and nature

A comprehensive review of papers⁶⁵ examining the health effects of green space supports the view that the health benefits can be gained from open space and nature. From this study it has been established that physical health benefits are related to increased physical activity.

Open space and nature can also contribute to other health determinants by improving community resilience and cohesion, (Section C9) reducing greenhouse gases (Section C11) therefore reducing health inequalities, enhancing living environment and improving mental health, particularly for children⁶⁶.

Evidence has been presented by the Forestry Commission⁶⁷ in literature review of peer review papers of the role of urban forests on health. The study established that proximity, size and amount of green space available to people in urban environments influenced physical and mental health outcomes. The review identified the key health benefits of green space as:

- *‘Long and short term physical benefits associated with obesity, life expectancy, heart rate and blood pressure;*
- *attention and cognitive benefits associated with restoration, mood and self-esteem;*
- *physical activity benefits associated with the use of greenspace;*
- *self-reported benefits in terms of health and life satisfaction; and*
- *community cohesion benefits through social contact fostered by greenspace’.*

The review suggested that the beneficial effects of green space include ‘providing a space that promotes social interaction and inclusion, reducing social annoyances and crime’ and ‘reducing stress and restoring cognitive function and capacity to function with the demands of life’.

A positive relationship has been found between green space and general health in a literature review by Greenspace Scotland⁶⁸. This study has established that *‘the attractiveness or quality of greenspace is an important determination of green space use’*. The review identified links to mental health, stating that *‘studies consistently show a relationship between levels of stress and access to urban green spaces’* and stated *‘activity and exercise, natural daylight, stimulation of the senses and aesthetic experience’* as potential factors in reducing stress.

65 Lee A.C.K and Maheswaran (2010) The health benefits of urban green spaces: a review of the evidence. Journal of Public Health 33

66 Faculty of Public Health in association with Natural England (2010) Great Outdoors: How our natural health service uses green space to improve wellbeing – An action report

67 O’Brien, L., Williams, K., Stewart, A.,(2010), Urban health and health inequalities and the role of urban forestry in Britain: A review, The Research Agency of the Forest Commission

68 Croucher, K., Myers, L., and Bretherton, J., (2007), The links between greenspace and health: a critical literature review, Greenspace Scotland

There has been research into the effects of the visual and aesthetic environment on wellbeing. This is mainly focused on psychological effects of 'natural' versus 'man-made' or urban views and evidence generally shows a preference for natural views over man-made landscapes. These links are often tied in with related issues such as opportunities for exercise and contact with nature.

Maller et al⁶⁹ identified the lack of opportunity to experience contact with nature, as a strong determinant of health and wellbeing. It has been concluded⁷⁰ that *'exposure to natural spaces – everything from green parks and open countryside to gardens and other greenspace – is good for health'*.

Open space and nature can also improve physical health, comfort, and mental wellbeing, as well as provide opportunities to improve people's quality of life and social interactions⁷¹. Other benefits cited by Douglas⁷² include alleviation of symptoms of anxiety and depression, and restored capacity for concentration and attention. A review of empirical, theoretical and anecdotal evidence^{69 71} has shown that contact with nature can also have positive effects on blood pressure, cholesterol and stress reduction, with particular relevance to mental health and cardiovascular disease.

Vulnerable Groups

Often the poorest people experience the lowest quality outdoor environments and disproportionately suffer inequitable access to open space and nature. Recent research has suggested that there is a positive association between the percentage of green space in a person's residential area and their perceived general health and that this relationship is strongest for lower socio-economic groups⁷³. A UK study⁷⁴ has found that income-related health inequalities are affected by exposure to green space and demonstrated that those with accessible green space lived longer than those with no green space and that the impact was significantly greater amongst the least well off.

Access to open space and nature has also proven particularly beneficial for the elderly and children. Access to green space has been shown to increase the longevity of senior citizens⁷⁵, particularly where there is more space for walking near homes in parks and tree-lined streets⁷⁶. Children have been identified as one of the key groups that can gain health benefits as access to green space is

69 Maller,C., Townsend,M., Pryor,A., Brown,P., and St Leger,L. (2005). Healthy Nature Healthy People: 'Contact With Nature' as an Upstream Health Promotion Intervention for Populations. Health Promotion International, Vol 21 No.1. Oxford University Press.

70 Sustainable Development Commission (2008) Health, Place and Nature

71 Royal Commission on Environmental Pollution (2007). The Urban Environment (RCEP Twenty-Sixth Report). RCEP.

72 Douglas,I. (2005). Urban Greenspace and Mental Health. Prepared for the UK MAB Urban Forum.

73 Maas J et al (2006). Green space, urbanity and health: how strong is the relation? Journal of Epidemiology and Community Health, 60, 587-592.

74 Mitchell R & Popham F (2008) Effect of exposure to natural environment on health inequalities: an observational population study. The Lancet 372 p1655-1660

75 EAA and JRCC (2013) Environment and human health. Report No 5/2013

76 Maas J, Verheij RA, de Vries S, Spreeuwenberg P, Schellevis FG and Groenewegen PP (2009) Morbidity is related to a green living environment. Journal of Epidemiology and Community Health 63: p967-97

particularly beneficial for increasing physical activity⁷⁷ and bringing about the mental and social development of children and the young⁷⁸.

77 Davidson K and Lawson C (2006) Do attributes of the physical environment influence children's level of physical activity? *International Journal of Behavioural Nutrition and Physical Activity* 3 (19): p1-17

78 Munoz, S (2009) *Children in the Outdoors: A Literature Review*, Sustainable Development Research Centre, the United Kingdom.

C4 Air quality, noise and neighbourhood amenity

C4.1 Air quality

The main health damaging air pollutants released are released as road traffic emissions. These are Particulate Matter (PM₁₀) and nitrogen dioxide (NO₂).

PM₁₀, comprises atmospheric particles that are less than 10µm in diameter. Road transport is a major source of PM₁₀, which is emitted from the combustion of vehicle fuels. The sizes of the particles influences the extent to which these particles may be deposited within the lungs (smaller particles have a greater chance of reaching the deeper parts of the lungs). There is growing evidence that smaller respirable particulate matter may be more relevant to health than larger particles. Recent studies⁷⁹ have found that ultra-fine particles (less than 0.1 µm) have been associated with stronger effects on the lung function and symptoms in asthmatics than either PM₁₀ or PM_{2.5}.

Studies have also suggested that particulate pollution of various sizes may exacerbate pre-existing asthma⁸⁰. Climate change and particularly the associated increasing temperatures have also been shown to augment the negative health impact of particulate matter, resulting in increased mortality⁸¹.

The effects of road traffic related NO₂ on health are less well understood than the effects of PM₁₀. Numerous epidemiological studies have identified associations between NO₂ concentrations and respiratory health⁸², but it may be that in these studies NO₂ is a key marker for traffic-related pollution more generally.

Quantifying short and long term impacts of NO₂ pollution has been problematic due to uncertainties in the concentration-response functions available. It has been estimated that the direct effect of NO₂ on the health of the UK's population could be that between 600 and 6,000 deaths per year may have been brought forward by a matter of days or weeks as a result of exposure to NO₂ in the ambient air. Likewise it has been estimated that between 1,400 and 14,000 hospital admissions and between 200,000 and 2 million GP consultations for respiratory illnesses may arise as a result of exposure to the ambient NO₂ in the UK each year. Ambient NO₂ is said to contribute to an average of 1-7 extra days of symptoms in asthmatics annually⁸³.

79 World Health Organization. (2000) Transport, environment and health. WHO Regional Publications, European Series. No.89

80 DoH Committee of the Medical Effects of Air Pollutants, (1998), Quantification of the Effects of Air Pollution on Health in the United Kingdom

81 Meng, X., Zhang, Y., Zhao, Z., Duan, X., Xu, X. and Kan, H., (2012), 'Temperature modifies the acute effect of particulate air pollution on mortality in eight Chinese cities', Science of The Total Environment 435– 436, 215–221.

82 Health Scotland, MRC Social and Public Health Sciences Unit and Institute of Occupational Medicine (2007). Health Impact Assessment of Transport Initiatives: A Guide. NHS Health Scotland.

83 Searl A. (2004). A review of the acute and long term impacts of exposure to nitrogen dioxide in the United Kingdom. Institute of Occupational Medicine

Vulnerable Groups

There has been research on the evidence on links between air quality and social deprivation in the UK⁸⁴ which showed that there is a tendency for higher relative mean annual concentrations of NO₂ and PM₁₀ in the most deprived areas. This distribution can largely be attributed to the high urban concentrations driven by road transport, and the higher frequency of deprived communities in urban areas. If exceedences of National Air Quality Standards are considered, the correlation between poor air quality and deprivation is stronger, showing that when the most polluted areas are considered, the greatest burden is on the most deprived communities, and very little on the least deprived.

The review also identified age as a key indicator of susceptibility to air pollution and identified that 'children and elderly groups [are] deemed more susceptible to certain health impacts'. This has been supported by recent evidence by the OECD⁸⁵ which notes the very old and very young as the most vulnerable population groups.

A3.6 Noise

Sound is produced by mechanical disturbance propagated as a wave motion in air or other media and noise is therefore unwanted sound. According to the WHO, *'In some situations, but not always, noise may adversely affect the health and well-being of individuals or populations'*⁸⁶. More recently, the WHO has stated that *'Environmental noise is a threat to public health, having negative impacts on human health and well-being'*⁸⁷.

The Government's Noise Policy Statement for England⁸⁸ (NPSE) also acknowledges that noise can affect people's quality of life and that there is emerging evidence linking noise with direct health effects. The NPSE clearly states the long term vision of Government noise policy which is *'to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development'*.

The response of an individual to noise in the everyday environment is more likely to be behavioural or psychological than physiological. There are a wide range of non-auditory health effects that may be associated with exposure to environmental noise, although the pathways, strength of association, and possible causal mechanisms for these are not fully understood.

The WHO⁸⁹ recognises the health linkages between environmental noise and disease including cardiovascular disease (mean blood pressure, hypertension,

84 Defra, Netcen, Department for Communities and Local Government, National Statistics. Air Quality and Social Deprivation in the UK: an environmental inequalities analysis - Final Report to Department of Environment, Food and Rural Affairs AEAT/ENV/R/2170, June 2006

85 OECD (2014) OECD Green Growth Studies Green Growth Indicators

86 World Health Organisation (1995). Community Noise. Edited by B. Berglund and T. Lindvall

87 World Health Organisation (2009). Night Noise guidelines for Europe

88 Noise Policy Statement for England, Defra, March 2010

89 World Health Organisation (2011). Burden of disease from environmental noise, Quantification of health life years lost in Europe. World Health Organisation and JRC European Commission

and ischaemic heart disease), sleep disturbance, tinnitus and annoyance. Other mental wellbeing effects include psychosocial effects, mental morbidity, impaired memory, impaired performance⁹⁰ communication and learning effects and impaired social behaviour⁹¹.

Noise is not believed to be the direct cause of mental illness, however studies suggest that it can accelerate and intensify the development of latent mental disorders. Research covers a variety of symptoms which include anxiety, emotional stress, nausea, headaches as well as general psychiatric disorders e.g. neurosis, psychosis and hysteria. Longer scale population studies have shown an association between noise exposure and various mental health indicators e.g. single rating of well-being, standard psychological symptom profiles, intake of psychotropic drugs and the consumption of tranquilizers and sleeping pills⁹².

Recent research has not provided conclusive evidence of a direct association between environmental noise and mental health. Evidence for the effect of noise on psychological health suggests that, for both adults and children, noise is probably not associated with serious psychological ill-health, but may affect quality of life and well-being⁹³.

Vulnerable groups

A WHO report⁹⁴ has identified the vulnerable groups associated with noise are those people with decreased personal abilities (such as the elderly, ill or depressed individuals), people with particular diseases or medical issues, people dealing with complex cognitive tasks (such as reading acquisition), people who are blind or have hearing impairments and certain age groups including foetuses, babies, children and the elderly as these people are less able to cope with the impacts of noise exposure and are therefore at greater risk of harmful effects.

C4.2 Neighbourhood amenity

There is no established evidence linking airborne dust with adverse health effects. Dust can cause eye, nose and throat irritation and lead to deposition on cars, windows and property⁹⁵ therefore impacting on the neighbourhood amenity.

Noise has been noted to impact on amenity for a local community by causing annoyance. As a result people may experience anger, disappointment, dissatisfaction, anxiety and stress amongst other symptoms⁹⁶.

90 Evans.G.W. and Lepore.S.J (1993). Non-auditory Effects on Children: A Critical Review. *Children's Environments* 10(1), 1993.

91 EAA and JRCC (2013) Environment and human health. Report No 5/2013.

92 World Health Organisation (1995). *Community Noise*. Edited by B. Berglund & T. Lindvall

93 I. van Kamp, E. van Kempen, C. Baliastas, D. Houthuijs (2013), Mental health as a context rather than health outcome of noise: competing hypotheses regarding the role of sensitivity, perceived soundscapes and restoration. *Proc. Internoise 2013*.

94 WHO (1999) *Adverse health effects of noise*

95 GLA (2006). *The control of dust and emissions from construction and demolition Best Practice Guidance*, Greater London Authority.

96 EAA and JRCC (2013) Environment and human health. Report No 5/2013.

Notley et al⁹⁷ reports the preliminary results emerging from the UK National Noise Attitude Survey undertaken during 2012 which indicate that around 30% of those who hear road traffic noise report being moderately, very or extremely bothered, annoyed or disturbed.

Vulnerable groups

Families with lower income tend to have lower mobility and greater exposure to the adverse environmental conditions in their neighbourhood related to transport such as air and noise pollution and road traffic⁹⁸.

97 H. Notley, C. Grimwood, G. Raw, C. Clark, R. Van de Kerckhove and G. Zepidou (2013), The UK national noise attitude survey 2012 - the sample, analysis and some results. Proc. Internoise 2013.

98 WHO (2012) Addressing the social determinants of health: the urban dimension and the role of local government

C5 Accessibility and active travel

C5.1 Accessibility

Accessibility refers to whether *'people can access key services at a reasonable cost, in reasonable time with reasonable ease'*⁹⁹. It relates to whether people are using public transport or sustainable transport options including considerations of the cost and social considerations such as how and why people use these options¹⁰⁰.

Research¹⁰¹ has related transport to a number of public health interests including physical activity and obesity, air quality and cardio-respiratory health, inequalities, mental health and social exclusion.

Furthermore the WHO¹⁰² identified that access to local facilities and services such as shops, schools, health centres and places of informal recreation are important for health and wellbeing due to the associated social interaction and due to the physical activity taken in getting there.

Accessibility for local residents to community facilities can play a significant role in promoting or discouraging physical activity. The key influential characteristics of an accessible community noted by Dannenberg et al¹⁰³ included proximity of recreation facilities, housing density, street design and accommodation for safe pedestrian, bicycle, and wheelchair use.

Vulnerable groups

Long-term illness sufferers, the disabled and the elderly are the most vulnerable group which are likely to suffer from accessibility issues as they are less likely to access services outside the vicinity due to mobility restrictions.

C5.2 Active travel

Active travel refers to modes of transport that require physical activity, in contrast to those that require little physical effort such as motor vehicles. It brings about positive health effects as a result of the physical activity associated with active travel. Research has identified that most sustained exercise results from everyday activities such as travelling to work or going to the shops, rather than exercise specifically for health purposes¹⁰⁴.

99 Social Exclusion Unit (2003) Making the Connections: Final Report on Social Exclusion and Transport. UK

100 House of Commons (2013) Environmental Audit Committee Report on Transport and accessibility to public services: Third Report of Session 2013-14. UK

101

102 WHO (2012) Addressing the social determinants of health: the urban dimension and the role of local government

103 Dannenberg A.L., Jackson R.J., Frumkin H., Schieber R.A., Pratt M., Kochtitzky C and Tildon H. N (2003) The Impact of Community Design and Land-Use Choices on Public Health: A Scientific Research agenda. American Journal of Public Health 93

104 Caldwell, L.L. (2005), Leisure and health: Why is leisure therapeutic?

Recent evidence¹⁰⁵ has shown that the local environment has an effect on participation in physical activity which in turn affects health. It identifies the following association between transport, the environment and physical activity:

- access to physical activity facilities;
- distance to destinations;
- levels of residential density;
- type of land use;
- urban walkability scores;
- perceived safety;
- availability of exercise equipment; and
- the provision of footways.

Levels of walking and cycling have been directly related to the local environment including the speeds and volume of motor traffic¹⁰⁶ and the experience in terms of relaxation, convenience and time efficiency¹⁰⁷.

Transport infrastructure designed to promote active travel can provide health benefits by increasing physical activity, reducing morbidity from air pollution and reducing the risk of road traffic accidents as the number of journeys undertaken by motor vehicles decreases¹⁰⁸.

Positive mental health effects associated with physical exercise have been highlighted in reviews by Cave et al¹⁰⁹, Sport England¹¹⁰ and AEA Technology¹¹¹. Mental health effects cited include improvements in people with generalised anxiety disorders including phobias, panic attacks, and stress disorders.

A recent systemic review of the link between positive physical health benefits and physical activity has been undertaken by Saunders et al¹¹². It was established that there is no clear evidence in the effectiveness of active travel in reducing obesity, however it identified that there has been the recent rise in the prevalence of obesity has occurred in parallel with a decline in active travel in the past 30-40 years¹¹³. It was also suggested that active travel over longer periods and longer distances may also reduce the risk of diabetes.

105 National Obesity Observatory (2011) Data sources: environmental influences on physical activity and diet

106 Jacobsen PL et al (2009) Who owns the roads? How motorised traffic discourages walking and bicycling. *Injury Prevention* 15 (2009)

107 Transport for London (2014) Improving the health of Londoners: Transport action plan

108 Sustainable Development Commission (2008) Health, Place and Nature

109 Cave, B, Curtis, S, Aviles, M, and Coutts, A, (2001). 'Health Impact Assessment for Regeneration Projects. Volume II Selected evidence base'. East London and City Health Action Zone.

110 Sport England. (2007). 'Active Design. Promoting opportunities for sport and physical activity through good design'. Supported by CABE, DH and DCMS. Sport England.

111 AEA Technology, (2000). 'Informing transport health impact assessment in London'. Commissioned by NHS Executive, London.

112 Saunders LE, Green JM, Petticrew MP, Steinbach R, Roberts H (2013) What Are the Health Benefits of Active Travel? A Systematic Review of Trials and Cohort Studies. *PLoS ONE* 8(8)

113 Lubans D, Boreham C, Kelly P, Foster C (2011) The relationship between active travel to school and health-related fitness in children and adolescents: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity* 8.

The Department of Health have summarised the positive effects of physical activity on physical health was summarised in a recent report¹¹⁴ which suggests that *'Regular physical activity can reduce the risk of many chronic conditions including coronary heart disease, stroke, type 2 diabetes, cancer, obesity, mental health problems and musculoskeletal conditions. Even relatively small increases in physical activity are associated with some protection against chronic diseases and an improved quality of life.'*

It has been shown that *'physical activity improves health throughout the life course – from childhood through to older age'*¹¹⁵. The health benefits of physical exercise occur across virtually the full range of diseases, and when this is combined with the prevalence of inactivity among the public, it *'makes physical activity one of the main contemporary public health issues'*.

Vulnerable groups

Although all individuals can derive benefits from regular exercise, the benefits to children and the elderly are particularly important. The importance of exercise for children brings benefits including building up bone density, avoidance of weight gain, links to health status in later life, and in establishing healthy behaviours and habits, which may be more difficult to begin in later life. The benefits for the elderly include retention of mobility, cognitive function and independence¹¹⁶.

114 CMO (2011) Start Active, Stay Active: A report on physical activity from the four home countries' Chief Medical Officers, Department of Health, Physical Activity, Health Improvement and Protection.

115 Harding, T., (1997), A Life Worth Living: the Independence and Inclusion of Older People, London: Help the Aged, cited in Beaumont, J., 2011, Measuring National Well-being, Discussion paper on domains and measures, Faculty of Public Health, Office for National Statistics

116 Department of Health, (2004). 'Choosing Health Summaries: Diet and Nutrition'. Public Health White Paper. Department of Health.

C6 Crime reduction and community safety

Community safety is crucial in determining health and wellbeing. It has been stated¹⁰³ that *'a healthy community protects and improves the quality of life for its citizens, promotes healthy behaviours and minimizes hazards for its residents, and preserves the natural environment.*

Crime has been identified as a key indicator in determining wellbeing¹¹⁷ as feeling safe at home and in the community is fundamental for mental health and wellbeing¹¹⁸. The design of the built environment can influence crime levels and perceptions of community safety. Interventions such as street lighting helping to reduce crime and design measures that promote inclusivity and 'eyes on the street' helps to reduce anti-social behaviour.

Crime can have direct effects on health through violence and indirect social and psychological effects arising from the fear of crime¹¹⁹. Measures to reduce crime and the fear of crime contribute to more secure, sustainable communities where individuals can go about their daily routine without compromising health and wellbeing.

It has been shown¹²⁰ that victimisation or fear of crime may manifest itself through stress, sleeping difficulties, appetite loss, loss of confidence and harmful 'coping' mechanisms such as smoking and alcohol consumption. The research also suggested that community problems such as disorder and anti-social behaviour, which are not strictly criminal offences, can have adverse effects on health.

Fear of crime has been shown in several studies to have a modest, but consistently significant, association with health and wellbeing.¹²¹ A recent review¹²¹ noted that fear of crime was only weakly correlated with actual crime rates, and highlighted other community safety issues such as urban neglect and social cohesion as factors affecting fear of crime.

The same study examines the consequences of fear of crime, stating that 'relatively few participants see fear as having serious mental health effects, although several report some degree of psychological stress as a result of fear. A much more widely perceived consequence of fear is to limit people's activities, including social and cultural activities, sometimes leading to social isolation. Participants from across the population report such limitations, but they appear to be more serious for women, older people and people with disabilities. Parents also report placing serious restrictions on children's activities.'

117 Randall, C. (2012), Measuring National Well-being, Where we Live, Office for National Statistics

118 Greater London Authority (2010) 'Review of the London Health Strategy High Level Indicators'. London Health Commission.

119 British Medical Association (1999). 'Health and Environmental Impact Assessment: an Integrated Approach'. Earthscan Publications Ltd.

120 Hirschfeld, A. (2003). 'The Health Impact Assessment of Crime Prevention'. Sourced from NHS National Institute for Health and Clinical Evidence.

121 Lorenc, T., Petticrew, M., Whitehead, M., Neary, D., Clayton, S., Wright, K., Thomson, H., Cummins, S., Sowden, A., Renton, (2012). A. Fear of crime and the environment: systematic review of UK qualitative evidence, BMC Public Health. 13: 496.

Vulnerable groups

Older people and women are identified as being particularly likely to suffer as a result of direct and indirect crime, particularly suffering from a fear of crime.

C7 Access to healthy food

Access to healthy food and a nutritious diet can prevent health effects associated with poor nutrition and chronic diseases related to obesity. Poor diet and nutrition, together with smoking and alcohol has accounted for many coronary heart disease and cancer deaths¹²². It is estimated that 70,000 premature deaths could be avoided each year if UK diets matched nutritional guidelines¹²³.

A recent report by the Department of Health¹²⁴ noted England as one of the world's leaders in obesity and excess weight which can increase health risks such as breathing problems, back pain, infertility, angina, gall bladder disease, liver disease, ovarian cancer, osteoarthritis and stroke.

Furthermore the report detailed that an obese man in comparison with a health man, is:

- five times more likely to develop type 2 diabetes;
- three times more likely to develop cancer of the colon; and
- more than two and a half times more likely to develop high blood pressure – a major risk factor for stroke and heart disease.

An obese woman, compared with a healthy weight woman, is:

- almost thirteen times more likely to develop type 2 diabetes;
- more than four times more likely to develop high blood pressure; and
- more than three times more likely to have a heart attack.

Recent research has outlined¹²⁵ that the availability of healthy eating food outlets which sell high quality, nutritious food at affordable prices influences healthy food choices. The availability of such facilities can encourage a healthier diet and thus lower the health risks associated with higher calorific and sugar intake and lower consumption of fruit and vegetables. Furthermore poor food availability and higher numbers of fast food outlets and convenience stores (as opposed to grocery stores or produce vendors) increased the likelihood of diabetes and obesity for individuals.

Community groups, voluntary organisations and social enterprises have an important role in supporting activities that promote healthy eating¹²³. Allotment gardening is one example of access to healthy food that can have a positive effect on both physical and mental wellbeing. It can provide voluntary

122 Department of Health, (2004). 'Choosing Health Summaries: Diet and Nutrition'. Public Health White Paper. Department of Health.

123 Cabinet Office (2008) Food Matters: Towards a Strategy for the 21st Century

124 Department of Health (2011) Healthy Lives, Healthy People: A call to action on obesity in England.

125 California Center for Public Health Advocacy (2008) Designed for Disease: The link between local food environments and obesity and diabetes

opportunities for horticultural therapy to people with physical and mental health problems¹²⁶.

Vulnerable groups

It has been noted that people on low incomes suffer more disproportionately from diet-related diseases. Difficulties are wider than a lack of money, relating to worse access to transport and to shops that sell good quality affordable food, particularly fruit and vegetables.

The high prevalence of childhood obesity also means that the children are a particularly vulnerable group. A recent systematic review¹²⁷ has highlighted that the food environment and health interventions can greatly influence a children's food intake and weight. A recent cross-sectional study in England¹²⁸ found evidence that *'there seems to be different effects of the food environment characteristics, most obvious for fast food density in the neighbourhood, across children's age groups, with clear associations for older children, but less for younger children'*.

126 NHS London Healthy Urban Development Unit (2007) Delivering Healthier Communities in London

127 Osei-Assibey G, Dick S, Macdiarmid J, et al. (2012) The influence of the food environment on overweight and obesity in young children: a systematic review. *BMJ Open* 2012;2:e001538. doi:10.1136/bmjopen-2012-001538

128 Cetateanu & Jones (2014) Understanding the relationship between food environments, deprivation and childhood overweight and obesity: Evidence from a cross-sectional England-wide study in *Health & Place* 27 p68-76

C8 Access to work and training

C8.1 Access to work

Much of the evidence between access to work and health is related to the negative impacts of unemployment, rather than the positive impacts of employment. However, it should follow that maintaining high levels of employment opportunities could be expected to be positive in health terms.

Research has identified that the unemployed are less likely to have access to health care than those who are employed. The unemployed also tend to experience higher levels of mental health issues (including depression, anxiety and stress), have higher levels of chronic disease (such as cardiovascular disease, hypertension and musculoskeletal disorders) and higher rates of premature mortality¹²⁹.

A recent meta-analytic review has also concluded that the psycho-social work environment is important for mental health¹³⁰. This is further supported by a study by the Department of Work and Pensions¹³¹ which found that *'work meets important psychosocial needs in societies where employment is the norm'* and that *'work is central to individual identity, social roles and social status'*.

The importance of work for health was outlined in the Marmot Review¹³², which stated that *'being in good employment is protective of health. Conversely, unemployment contributes to poor health'*. The same report also states that ensuring more people across the social gradient, are able to access 'good' work and improving the overall quality of jobs available is a key method for tackling health inequalities and improving overall health and wellbeing.

The key components for employment and good jobs that protect and promote health and wellbeing for individuals are a living wage, a degree of control over their work, opportunities for skills building and promotion, mechanisms for participating in organisational decision-making, the option of meeting conflicting personal and professional demands, support upon return following illness, protection from adverse working conditions and equality in the workplace¹³³.

Vulnerable groups

The more deprived population benefit from physical and mental health benefits associated with increased access to work as it improves wealth and associated

129 Pharr J.R., Moonie S & Bungum T.J (2012) The impact of unemployment on mental and physical health, access to health care and health risk behaviours. ISRN Public Health

130 Stansfeld SA & Candy B (2006) Psychosocial work environment and mental health – a meta-analytic review. Scand J Work Environ Health 32 p443-62

131 Waddell, G., Burton, A. K.,(2007), Is work good for your health and well-being?, The Stationery Office

132 Marmot, M., Allen, J., Goldblatt, P., Boyce, T., McNeish D., Grady, M. and Geddes, I., (2010), Fair society, healthy lives: Strategic review of health inequalities in England post-2010, The Marmot Review

133 North West Public Health Observatory (2010) Creating Healthier Workplaces

benefits such as food, access to services and reduces inequalities as outlined in the Marmot Review.

C8.2 Access to training

Training is a form of work involving the application of physical or mental effort to improve skills, knowledge or other personal resources which can improve chances of employment and career progression.

Evidence¹³² has identified '*Reducing the social gradient in skills and qualifications*' as a priority objective to reduce health inequalities. The review made policy recommendations including increasing lifelong learning opportunities, including work-based learning, to improve health outcomes.

Vulnerable groups

Young adults who undertake training have been shown to have improved somatic and psychological symptoms compared with those who are unemployed. It was noted as particularly important for mental health, general wellbeing and for the longer-term social development of school leavers¹³⁴.

134 Waddell G and Buton A. K (2006) Is work good for your health and well-being? The Stationary Office.

C9 Social cohesion and lifetime neighbourhoods

C9.1 Social cohesion

The WHO has defined¹³⁵ social cohesion as the quality of social relationships and existence of trust, mutual obligations and respect in communities or the wider society. This is closely related to social exclusion and levels of inequality within a given community.

Health inequalities in England have been reviewed as part of the Marmot Review¹³² which concluded that reducing health inequalities is a matter of fairness and social justice and that there is a social gradient in health. It is surmised that action taken to reduce health inequalities will benefit society and that the fair distribution of health, well-being and sustainability are important social goals.

Social cohesion is related to volunteering, the empowerment of individuals and diversity within communities. A review of evidence¹³⁶ suggests that people who were actively involved in a range of community activities perceived health benefits from their involvement including positive psychological health outcomes, physical fitness, healthier nutrition, reduced cigarette and alcohol consumption. On the contrary it has been found that inequalities and crime and safety can erode social cohesion in a community¹³⁷.

Social cohesion is closely linked to social capital has been defined as '...the institutions, relationships and norms that shape the quality and quantity of a society's social interactions... Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together'¹³⁸.

The physical environment can influence social capital and social cohesion as they are reliant on well designed, high quality, accessible spaces where people can become empowered by pursuing their enthusiasms and forming relationships with other members of the community. Recent research¹³⁹ in new communities by the Joseph Rowntree Foundation has provided evidence that the setting up of activities to bring people together to improve their social networks helped to prevent loneliness and improve wellbeing. Individuals benefited through gains in confidence, self-worth and emotional intelligence which boosted their resilience and protected against loneliness.

135 WHO (2003) Social determinants of health: the solid facts 2nd edition.

136 Attree P, French B, Milton B et al. (2011) The experience of community engagement for individuals: a rapid review of evidence. Health Social Care Community 19 p250–60.

137 Department for Communities and Local Government (2008) Predictors of community cohesion: multi-level modelling of the 2005 Citizenship Survey

138 The World Bank, (1999), What is Social Capital?, PovertyNet

139 Joseph Rowntree Foundation (2014) Can a neighbourhood approach to loneliness contribute to people's well-being?

Social cohesion is also linked to transport infrastructure which enables residents to both integrate within and move outside of their own community. Social cohesion and social capital have been shown to positively correlate with a reduced fear of social isolation and positive mental health⁴⁵.

A literature review by Cave et al.¹⁴⁰ has stated that social capital may:

- protect health by buffering against the effects of life events which may be damaging to health;
- have physiological effects, through the hormonal system, on the body's response to stress and functioning of the immune system;
- reduce isolation, which is associated with disease, accidents and suicide;
- enable people to cope with illness better and have better prognoses when ill; and
- reduce or protect against mental health problems, such as anxiety and depression.

The importance of social cohesion for new towns, particularly in terms of mental health in the local area was outlined by Goh & Bailey¹⁴¹:

'Those responsible for the establishment of New Towns must influence developers to ensure they recognise and provide resources for social cohesion as well as the physical environment... A Key challenge is to incorporate evaluation as part of an ongoing continuous improvement process, identifying suitable, simple valid measures to local communities.'

Vulnerable groups

Some population groups are believed to be at particular risk of social exclusion including black and minority ethnic groups, disabled people, lone parents, older people, carers, asylum seekers, refugees and ex-offenders¹⁴².

Gypsies and travellers have also experienced social exclusion¹⁴³, particularly in South Cambridgeshire in terms of respecting cultural issues and specific requirements of both communities¹⁴⁴. This has been highlighted by the work of the Ormiston Travellers Initiative which works across Cambridgeshire to address social exclusion and the promotion of equality.

The elderly have also been highlighted as a vulnerable group as it is estimated that about 20% of the older population are lonely¹⁴⁵ and a

140 Cave, B., Curtis, S., Aviles, M. and Coutts, A.,(2001), Health Impact Assessment for Regeneration Projects. Volume II Selected evidence base, East London and City Health Action Zone, University of London

141 Goh & Bailey (2007) 'The effect of the social environment on mental health: Implications for service provision in new communities' Cambridgeshire PCT

142 Wanless (2003) Securing good health for the whole population. Population Health Trends HM Treasury / Department of Health

143 Equality and Human Rights Commission (2009) Inequalities experienced by Gypsy and Traveller communities: A review

144 South Cambridgeshire District Council (2010) Gypsy and Traveller Community Strategy 2012-2013

145 Godfrey, M., Townsend, J., Denby, T. (2004) Building a Good Life for Older People in

further 8-10% are intensely lonely¹⁴⁶. This is often associated with divorce, the death of a partner, living alone or the confrontation of poor health¹⁴⁷.

C9.2 Lifetime neighbourhoods

Lifetime neighbourhoods have been described as *'sustainable communities that offer a good quality of life to all generations'*¹⁴⁸. It is expected that lifetime neighbourhoods are likely to foster:

- a strong social and civic fabric, including volunteering, informal networks;
- a culture of consultation and user empowerment amongst decision-makers; and
- a strong local identity and sense of place.

The potential health effects of the aspects outlined above, that contribute to the concept of a lifetime neighbourhood, are all further explored within the other determinant sections that make up this literature review. The key components that make up lifetime neighbourhoods have been described¹⁴⁹ as:

- Resident empowerment;
- Access;
- Services and amenities;
- Built and natural environments;
- Social networks and wellbeing; and
- Housing

Lifetime neighbourhoods are supported as they *'offer everyone the best possible chance of health, well-being, and social, economic and civic engagement regardless of age. They provide the built environment, social spaces that allow us to pursue our own ambitions for a high quality of life. They do not exclude us as we age, nor as we become frail and disabled.'*¹⁴⁸

Vulnerable groups

Lifetime neighbourhoods are important for the elderly as they address the provisions necessary for an aging society. Lifetime neighbourhoods are

Local Communities: The Experience of Ageing in Time and Place. York: Joseph Rowntree Foundation

146 Victor, C. (2011) 'Loneliness in Old Age: the UK Perspective' in Safeguarding the Convoy: A Call to Action from the Campaign to End Loneliness. Abingdon: Age UK Oxfordshire.

147 De Jong Gierveld, J., Fokkema, T., Van Tilburg, T. (2011) 'Alleviating loneliness among older adults', in Safeguarding the Convoy: A Call to Action from the Campaign the End Loneliness. Abingdon: Age UK Oxfordshire.

148 Ed Harding, International Longevity Centre UK (2007) 'Towards Lifetime Neighbourhoods: Designing sustainable communities for all'. Department for Communities and Local Government.

149 Bevan M & Croucher K (2011) Lifetime Neighbourhoods. Department for Communities and Local Government.

particularly important for physical and mental health, wellbeing and mobility in later life to support the independence of older people.

C10 Minimising the use of resources

Reducing or minimising waste including disposal processes for construction as well as encouraging recycling at all levels can improve human health directly and indirectly by minimising environmental impact, such as air pollution¹⁵⁰.

Sending out waste from a development site to be sorted or disposed can increase vehicle movements, emissions and cause significant disruption including noise and dust which can contribute towards health problems for residents. See section C4 for further details on the linkages to potential health effects from both air quality and dust, and noise impacts.

Energy use for buildings, heating and lighting is a large part of energy and resource demand in communities and is often associated with greenhouse pollutants. The inclusion of energy efficiency measures can have net benefits for health through improved temperatures and air quality which can improve mortality and morbidity rates from pollutants associated with combustion¹⁵¹.

150 HUDU (2013). HUDU Planning for Health. Rapid Health Impact Assessment Tool. (NHS) London Healthy Urban Development Unit.

151 The Lancet (2010) The health benefits of tackling climate change. Wellcome Trust

C11 Climate change

Climate change is the projected rise in global temperatures as a result of anthropogenic development which is likely to contribute to continued changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather events.

The latest Intergovernmental Panel on Climate Change (IPCC) report released in March 2014 documents the scale and evidence of global health risks and benefits from climate change. The most recent UK Climate Projections (UKC09) have stated that the UK should expect a shift generally towards wetter winters and a greater proportion of precipitation to fall as heavy events. There is a predicted rise in temperature and greater likelihood of drier summers has been suggested, but the various projections cover a wide range of outcomes from climate change.

There are direct impacts linking the environment and health such as heat-related effects, flooding and poor air quality and indirect impacts such as fuel poverty, access to green space and disruption to services and access such as healthy food.

Many of the health impacts are therefore interrelated with the health determinants and associated health impacts previously mentioned. It is important for the NHS, public health, social care services and communities to understand the health and wellbeing implications of current and projected changes as a result of climate change so that they can adapt accordingly and ensure resilient provision for mental and physical health facilities.

C11.1 Allergens, infectious disease and vectors for disease

Climate change can influence allergens, particularly allergenic plants by changing flowering times and distribution leading to negative impact for allergic people by lengthening the allergy season¹⁵².

The Inter-governmental Panel on Climate Change (IPCC)¹⁵³ also reported that the distribution and range of some infectious disease vectors along with the seasonal distribution of some allergenic pollen species has the potential to negatively impact on health.

C11.2 Increased precipitation and flooding

The direct and indirect effects of flooding have been outlined in recent research¹⁵⁵. Direct effects include physical trauma, injuries and drowning. Indirect

152 Health Protection Agency (2012) Health Effects of Climate Change in the UK 2012

153 IPCC (2007) IPCC Fourth Assessment Report : Climate Change 2007 (AR4) - Working Group II Report 'Impacts, Adaptation and Vulnerability'.

effects include damage from infrastructure, water supplies, displacement and disruption to people's lives.

Flooding also has negative effects on mental health and wellbeing by increasing cases of anxiety, depression and sleeplessness after a flooding event¹⁵⁴. Increased precipitation, rising sea levels and flooding can also increase the risk of contamination to water supplies¹⁵⁵ however this is usually low risk in the UK.

154 Ahern M, Kovats R.S, Wilkinson P, Few R and Matthies F (2005) Global Health Impacts of Floods: Epidemiologic Evidence. *Epidemiologic Reviews* 27.

155 Defra (2012) UK Climate Change Risk Assessment: Health Sector Report

Appendix D

HIA Scoping Report

Homes and Communities Agency
Northstowe Phase 2
HIA Scoping Report

Issue | 13 August 2014

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number

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Glossary of terms and abbreviations

CCC	Cambridgeshire County Council
CGB	Cambridgeshire Guided Busway
DCLG	Department of Communities and Local Governance
DCO	Development Consent Order

DFD	Development Framework Document
DH	Department of Health
EIA	Environmental Impact Assessment
GIA	Gross Internal Area
GP	General Practitioner
Ha	Hectares
HCA	Homes and Communities Agency
HAD	Health Development Agency
HIA	Health Impact Assessment
HUDU	Healthy Urban Development Unit
LSOA	Lower Super Output Area
MSOA	Middle Super Output Area
NAAP	Northstowe Area Action Plan
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
NPPF	National Planning Policy Framework
SCDC	South Cambridgeshire District Council
SOA	Super Output Area
WHO	World Health Organisation

1 Introduction

The Homes and Communities Agency (HCA) is proposing to submit two planning applications to South Cambridgeshire District Council for phase 2 of the proposed new town, Northstowe, which is located approximately 10km north-west of Cambridge.

The two parallel planning applications include an outline application for the ‘on-site’ development; and a full application for an ‘off-site’ road. These are described further detail in the sections below.

1.1 Application 1 – Phase 2 of Northstowe

An outline planning application for Phase 2 of Northstowe, comprising: approximately 3,500 dwellings, two primary schools, the secondary school, the town centre including employment uses, formal and informal recreational space and landscaped areas, the eastern sports hub, the remainder of the western sports hub (to complete the provision delivered at Phase 1), the busway, a primary road to link to the southern access, construction haul route, engineering and infrastructure works.

1.2 Application 2 – Southern Access Road (West)

A full planning application for the highway link from the proposed new town to the B1050 Hatton’s Road north of the A14 Bar Hill junction including landscaping and drainage.

1.3 Report structure

This HIA Scoping Report sets out the proposed scope of the HIA to be submitted with the planning applications.

This scoping report outlines the proposed approach to the HIA, including:

- Project description;
- Background to HIA;
- Proposed HIA methodology and scope; and
- Identification of health determinants to be included in the HIA.

2 Project Description

2.1 Site Location

The site for Application 1 is approximately 165 hectares located to the east of the village of Longstanton, as illustrated in Figure 1. The application site is bordered to the east by the route of the Cambridgeshire Guided Busway, and to the west by Longstanton. The site includes the area of the former Oakington Barracks, which currently comprises of three buildings, with no current use; slabs remaining from demolished buildings; remaining facilities associated with the barracks including sports amenities and green space; and a water tower. The site surrounds the existing settlement of Rampton Drift, comprised of 92 properties, originally built as part of the barracks complex, although this area is not included in the application. The wider site includes areas of hardstanding and open space associated with the former airfield (much of this currently occupied by agricultural tenants), farmland including Brookfield Farm and Larksfield Farm. The site also includes a section of Rampton Road.

Intervening vegetation results in the site being largely screened from surrounding villages and farmsteads. The spire of All Saints church in Longstanton and the water towers are the only built features visible in the wider landscape.

There are groups of mature trees throughout the former Oakington Barracks including avenues of mature trees around the barracks complex and leading to the station headquarter building. There are also groups of mature trees in the western corner of the site and around Rampton Drift. These all contribute to the wooded setting to the site and adjacent Longstanton.

Drains and ditches are a prominent feature in the Cambridgeshire landscape and there are several surface water drains running through the site. The nearest water courses are the Beck Brook which meanders along the eastern boundary of the site (50m from the site boundary at its closest point) and Oakington brook 1km south of the site.

The site for Application 2, i.e. the site for the Southern Access Road (West) runs from the B1050 to the boundary of Northstowe, as shown on Figure .1 This site comprises existing fields and has an area of approximately 51 hectares.

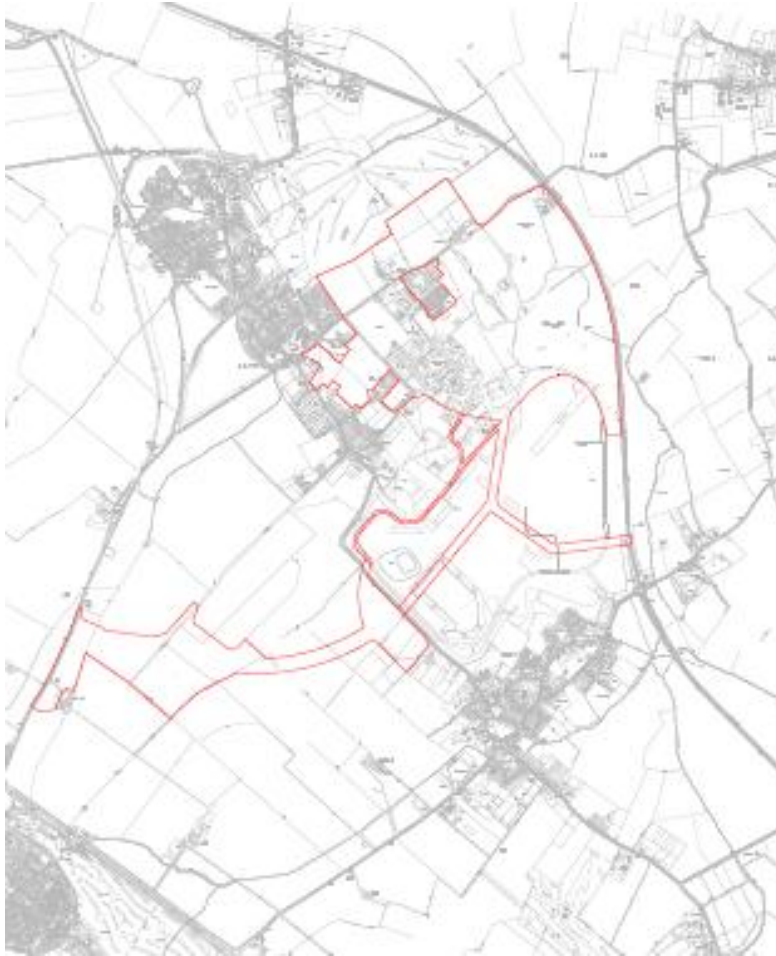


Figure 1: Site location plan

2.2 The surrounding area

The area surrounding the site is dominated by agricultural land, with a few scattered dwellings and small settlements. In addition to the settlements of Longstanton, Oakington and Rampton Drift, the site is also in proximity with Rampton (approximately 1km to the north west) Willingham (approximately 2km to the north), Cottenham (approximately 2.5km to the east).

To the north of the Application 1 site is the proposed site of Phase 1 of Northstowe, for which an outline planning application was submitted by Gallagher Estates to South Cambridgeshire District Council in February 2012, and resolution to grant permission was made in October 2012. The current uses of this site include agricultural fields and Cambridge Golf Club, which closed in August 2013.

To the south of the Application 1 sites, and through which its access routes run is land that is identified for future phases of development of Northstowe.

The A14 runs approximately 3km to the south west of the site. The B1050 Hatton Road/Longstanton western bypass runs from the A14 to a roundabout to the north west of the site.

2.3 Project Background

The Northstowe site was promoted by landowners Defence Estates and Gallagher Estates during the late 1990s, and subsequently became allocated as a strategic settlement through the Cambridgeshire Structure Plan and the South Cambridgeshire Local Plan. In July 2007, the South Cambridgeshire District Council adopted the Northstowe Area Action Plan (NAAP), which sets out the policy framework for the determination of any Northstowe planning application.

In December 2007, English Partnerships (now HCA) and Gallagher Longstanton Ltd (acting as Joint Promoters) submitted an outline planning application for approximately 9,500 dwellings and associated facilities and infrastructure, together with three full applications for highway infrastructure. These applications remain undetermined. Following the Government's Comprehensive Spending Review in 2010, the A14 road improvement scheme was withdrawn.

Since this time, the HCA and Gallagher have worked alongside South Cambridgeshire District Council and Cambridgeshire County Council to develop a phased approach to delivering Northstowe, based on a revised masterplan contained within the Development Framework Document.

2.3.1 Development Framework Document development

The Development Framework Document (DFD) was prepared by the Joint Promoters and the planning authorities, and was endorsed by NJDCC in July 2012.

The DFD defines the rationale and structure for Northstowe's planning and delivery as a comprehensive development, whilst providing place making principles and guidance for individual phases of development. Part of the Development Framework is a framework level masterplan for the whole of Northstowe, in order to guide the preparation of phased planning applications. The masterplan includes:

- up to 10,000 dwellings, a proportion of which will be affordable, at a density of about 40 dwellings per ha with higher densities at the centre reducing towards the settlement edge;
- employment centres equivalent to approximately 20ha of dedicated employment land;
- town and local centres comprising retail, hotel, leisure, community facilities such as police, fire and ambulance services and residential uses (approximately 11.6ha);
- four sports hubs equivalent to approximately 39ha (including a synthetic turf pitch at the secondary school);
- green separation between Longstanton and Oakington and the built development;
- education facilities from nurseries and early years to adult education, including one secondary school and seven primary schools;
- significant open spaces including informal open space and water park as well as children's play space (approximately 135ha);
- allotments and community orchards;

- high quality public transport system serving the whole town;
- use of renewable energy sources, such as micro-generation, and minimisation of energy consumption through careful design; and
- an exemplar drainage strategy.

In addition, two addendums to the DFD were also produced in 2012. The ‘An exemplar of sustainable living’ addendum sets out the exemplar, unique and special aspects that Northstowe aspires to achieve, focusing on environmental, economic and social aspirations for the town. The ‘Phasing and delivery strategy’ addendum presents a broad phasing strategy for the delivery of Northstowe.

2.3.2 Phase 1

In February 2012 an application for Phase 1 outline application for up to 1,500 homes was submitted for approval by Gallagher Longstanton Ltd., and in October 2012 a resolution to grant permission was made. Following the signing of a Section 106 Agreement, a decision notice was issued in April 2014. Work is expected to commence on site in 2014.

The application site of Phase 1 is located to the northeast of Longstanton and abuts the western boundary of the Cambridgeshire Guided Busway. The application red line boundary comprised two separate areas: the development site (97ha) accommodating the development proposal and an area of land (25ha) for the provision of flood attenuation ponds southwest of the village of Longstanton on Hattons Road.

The Phase 1 proposal included:

- up to 1,500 dwellings, including affordable housing in a mix of tenure types;
- a local centre, including space for a community building and provision for retail and other appropriate uses;
- a primary school;
- 5ha of employment land including a household waste recycling centre and foul water pumping station;
- formal and informal public open space, including a sports hub of over 6ha and approximately 23ha of additional public open space including parks / play space and a network of footpaths and cycle ways;
- water bodies of approximately 5.2ha including a water park providing a recreational, ecological and drainage resource;
- 1.57ha of allotments and community orchard;
- improvements to the existing B1050;
- earthworks and cut and fill to enable land raising and re-profiling of the site for sustainable drainage purposes.

The Phase 1 proposal included an average density of 37.5 dwellings per ha, slightly below policy requirements. It was agreed that this was acceptable as there would be opportunities for higher density development in later phases of Northstowe.

2.3.3 A14 road improvement proposals

Following the withdrawal of the A14 road improvement scheme in 2010, the Government announced in 2012 that an A14 Cambridge and Huntingdon improvement scheme would be taken forward. The current Highways Agency plans include a series of upgrades to the A14 between Cambridge and Huntingdon, including:

- widening the existing A14 over approximately five-and-a-half miles to provide three lanes in each direction between Swavesey and Bar Hill, and to four lanes in each direction between Bar Hill and Girton;
- widening of a 1.5 mile section of the Cambridge Northern Bypass between Histon and Milton;
- improvement of existing A14 junctions at Swavesey, Bar Hill and Girton; and
- a new bypass to the south of Huntingdon.

The improvements will relieve current traffic congestion as well as providing capacity for future development in the area, including Northstowe. They will also deliver economic, environmental, and road safety benefits across the region. The proposals are therefore closely linked with the delivery of Northstowe.

Provision of £1.5 billion of capital investment has already been made for this scheme, funded through a combination of contributions from central and local government and the Local Enterprise Partnership. It is anticipated that the Development Consent Order (DCO) application for the A14 road improvements will be made in late 2014, with a Secretary of State decision made by early 2016 and operational by 2019 or 2020.

2.4 The Proposed Development

2.4.1 Application 1

This section provides a description of principal development elements of Application 1. The area included in Application 1 extends to 165 hectares.

Residential

Up to 3,500 new dwellings within the application have been consulted on. The area of residential development land is approximately 44 hectares (49 hectares including town centre residential).

A variety of house types and size will be provided broadly in accordance with the mix reported in Table 1.

Table 1: Indicative residential mix

Dwelling type	Ref	Number of units	% of dwelling type
2 bed house	A1 to A2	441	13%
3 bed house	B1 to B3	1,447	41%
4 bed house	C1 to C5	832	24%
5 bed house	D1 to D2	88	3%
1 bed apartment		275	8%

2 bed apartment		417	12%
TOTAL		3,500	100%

Housing in the town centre area will generally be located above retail or other commercial uses. These buildings will have the capacity to go up to five storeys in total.

Affordable housing will be provided as part of the development. The affordable housing will be ‘pepper-potted’ throughout the housing areas. The proportion of affordable housing to be provided will be determined as a part of a process of negotiation with the local planning authority on planning obligations. It is anticipated that the proportion of affordable housing is unlikely to be less than 20% of the overall number of units.

Town Centre

Phase 2 includes the delivery of the town centre for Northstowe. The area identified for the town centre is 6.96 hectares

Non-residential floorspace within the town centre comprises of approximately 57,500 sq.m. Gross Internal Area (GIA). The precise use and layout of this area will be determined by subsequent reserved matters applications should outline planning permission be granted.

Provision has been made for the following types of uses to be located within the town centre: retail, food and drink, health centre, civic hub, community meeting space, place of worship, youth facilities, crèche, library.

Within the town centre area provision has been made for a town square. It extends to 0.28 hectares and is likely to be 51.55m x 54.31m.

The busway passes through the town centre and a busway stop would be provided in this area (one of three busway stops in the complete Northstowe development, excluding the stops on the Cambridgeshire Guided Busway (CGB) itself). Other bus services would also be found along the busway in the town centre area.

Employment

Employment will be provided within the town centre, and will comprise a total floorspace of approximately 21,200 sq.m GIA.

Employment uses in Phase 2 will comprise those uses included in Use Class B1 Business i.e. offices, research and development and light industry.

Education

Provision has been made for two primary schools one two form entry (FE), one 3FE and one secondary school (12FE) in the Phase 2 application.

The schools will be designed, built and operated by third parties (The Cambridge Meridian Academies Trust has been identified as the provider of the secondary school. The provider/s of the Primary Schools are yet to be determined).

One primary school is proposed on the site of the officers mess (to the west of Rampton Drift). A school on this site could potentially re-use the existing building (subject to modifications) or provide a new build solution. For the purposes of the application it should be assumed that a building of between 1 and 3 storeys could be provided. This site is 2.54 hectares

The other primary school would be a new build on a 2.32 hectares site. The application is seeking consent for buildings of between 1 and 3 storeys on the primary school sites.

The secondary school that is included within the application will eventually serve the complete Northstowe development and surrounding villages. This requires 12FE for years 11 to 16. In addition the application makes provision for eventual provision of Special Education Needs (SEN) and sixth form. For the purposes of Phase 2 it should be assumed that a total of 7FE (11 to 16 including any SEN) and 2 FE (sixth form) is required. The site allocated for the secondary school is 14.1 hectares.

For the secondary school it is relevant to note that the equivalent of 4FE are provided as part of the Phase 1 application (2FE to meet existing need - funded by the County and 2FE to meet the needs of Phase 1 – funded by the developer). However no impact assessment (e.g. traffic) was completed as part of the Phase 1 application. The provision of secondary school education on site may reduce traffic movements as children are not travelling elsewhere.

Note that discussions are on-going that could combine the adjacent primary and secondary schools onto a single site as a through school. This could potentially release part of the primary school site for alternative uses, including housing. The use of the site to be included in the application will be determined by the end of July 2014.

Play, Sport and Recreation

Provision has been made for an eastern sports hub and the remainder of the western sports hub, as well as playspace. The provision of outdoor sport is set out in Table 2 below to meet South Cambridgeshire Districts Council standards.

Table 2: Provision of outdoor sports facilities in Northstowe Phase 2

Use Type	Area (ha)
Eastern sports hub	10.67
Western sports hub	3.07

In addition, there is 43.6 hectares of other open space provision. The landscape/open space areas is reported in Table 3.

Table 3: Open space provision in Northstowe Phase 2

Use Type	Description	Area (ha)
Green separation	This is the area that separates Longstanton from the proposed development, in line with the requirements of the DFD.	16.88
Greenway - informal	The greenways are a defining feature of Northstowe and provide key east west links across the development. The informal greenways should provide an ecological area that contributes to offsetting the	4.36

Use Type	Description	Area (ha)
	<p>effects of development. These greenways also have a recreation and open space function.</p> <p>There are three informal greenways:</p> <ol style="list-style-type: none"> 1. At the north to align with the Phase 1 greenway, including retention of existing hedgerows that define the site boundary. 2. Along Rampton Road. 3. Along the southern edge of the development. 	
Greenway - formal	The formal greenways are located within the development areas and provide a recreational and open space function, with ecological benefits. These greenways allow the retention of trees.	4.22
Water park	The water park is required to provide an area of flood attenuation for a 1:200 year + climate change flood event. The water park also has an ecological, recreation and open space function.	19.63
Town park	The town park is a formal 'square' within the town centre area. It is likely that this area will be hard landscaped as it will be used for a range of activities to support the vitality and vibrancy of the town centre.	0.28

There will be a visual and material link where the greenways cross the road network. This will be done through intersecting materials (such as cobbles) as well as planting on either side of the road.

Access

The primary roads and busway within Phase 2 will link directly to the equivalent roads in Phase 1, noting that a minor change to the alignment of the end of the Phase 1 eastern primary road is proposed (to make a straight line rather than diverting around an existing access lane).

The busway corridor will vary in width along its length to accommodate different section typologies, although the busway carriageway itself will generally be 6.5 metres in width.

To the south of the main area of development a series of corridors are shown to allow for the development of the primary roads and busway to their connection points. The roads will link to the Southern Approach Road and junction (see Application 2), the busway will link to the CGB at the existing spur north of Oakington. The width of the corridors and roads/busway is shown below. (Please note, the easternmost corridor through Phase 3 has been removed as it is no longer required following the non-inclusion of Application 3.)

A construction road is shown in the application. This uses the Airfield Perimeter Road to allow an alternative access to the site. The route would only be used by construction access. The exit from the roundabout shown in Application 2 would be retained for permanent use once the second and third primary routes are required as part of Phase 3. These routes are described below in Table 4.

Table 4: Proposed access routes

Route	Corridor width	Roadway width
Primary road	50 metres	7.3 metres carriageway Plus footpaths, cycleway and swales
Busway	50 metres	6.5 metres
Airfield Perimeter Road	Approximately 16 metres (varies)	As existing
Secondary roads	20 metres	6.1 metres

Drainage

It is proposed to provide a surface water drainage system for the development incorporating SUDS (Sustainable Drainage Systems) which combined with landscaping features provide an enhanced environment without increasing the rate of surface water run-off from the developed site. These SUDS facilities will be provided for the whole development site and locally within each development parcel.

Surface water drainage for the existing site discharges to on-site ditches and watercourses. The proposed new development will discharge surface water flows into attenuation ponds via swales.

The attenuation ponds will consist of two new large water parks, which will be constructed to the east of the site. Surface water will be stored within the ponds and will be discharged at a controlled rate via a pumping arrangement. The pumping will occur outside of flood events, and the onsite drainage will be designed to accommodate a 1 in 200 year storm event + 30% climate change without flooding.

In the event that water levels in the receiving watercourses off-site are too high, the telemetry system will halt any discharge from the lifting pumps so as not to release any more water from the storage ponds, until the water levels subside.

In addition to the rates of discharge other SUDs methods such as permeable paving, filter drains and green roofs will help to improve the water quality of the surface water run-off before it exits the site.

Foul water will be directed to Anglian Water's Uttons Drove sewage treatment works (STW), which discharges into the Uttons Drove drain, as this treatment facility is best suited for improvement in order to receive the increased effluent associated with the new development in the area. An upgrade to the watercourses between Uttons Drove and Webbs Hole Sluice together with a pumping station at Webbs Hole Sluice will be required to accommodate the increased treated outflow from the STW.

The proposed foul water drainage strategy for Northstowe consists of gravity sewers draining to five lift pumping stations and one terminal pumping station (located on Phase 1 site), which will form the main foul outfall for the site. The terminal pumping station will discharge effluent directly to Uttons Drove STW. The main gravity spine sewer is to be located along the alignment of the proposed CGB route through the site from south to north.

Levels

An increase in levels of up to 0.5m is proposed across the site, with an area of fill proposed in the north east where there is a requirement to increase levels to minimise flood risk and to link with the Phase 1 development levels. Areas of cut are proposed in the Water Park area.

Energy and Sustainability

The preferred option for delivering low carbon energy is site wide building mounted Solar PV to meet 100% of the Carbon Compliance Target. The focus is on achieving the zero carbon target through predominantly on-site and/or direct near site technology rather than any significant reliance on off-site/off-set allowable solutions.

A range of measures have been considered to achieve a Zero Carbon Target:

1. Town Centre: Gas CHP plus Allowable Solutions (Type 1) financial contribution for residual emissions
2. Allowable Solution (Type 2): Land based PV array
3. Allowable Solution (Type 2): Medium to Large Scale Wind
4. Allowable Solution (Type 1): Financial contribution

Application 2

This is a full application for the Southern Access Road (West), which includes the proposed junction with the B1050 and the junction to the west of the Northstowe development area. The proposed road is a dual carriageway, full details of which are shown on the Application 2 plans.

Note that the requirement to complete works along the B1050 are dependent on reaching agreement with the Highways Agency on the extent of the A14 upgrade works. There are on-going discussions on whether this aspect can be included in the A14 scheme. Application documents should be prepared so that this element can be excluded if required at a later date.

2.4.2 Construction of Northstowe Phase 2

The construction of Northstowe Phase 2 development is proposed to be built out in six key residential phases and one overlapping phase of construction for the Southern Access Road (West). A final phasing plan would be agreed in advance of commencement with SCDC and CCC. These timescales may vary depending on changes to housing market conditions. The proposed six phases are outlined below, with a phasing timeframe reported below in Figure 2.

- **Sub Phase A (2016-2018):** To include secondary school, completion of water park and enhancement of green separation (west);
- **Sub Phase B (2017-2019):** To include initial residential units adjoining Phase 1, commencement of access road to south (through future Phase 3 area to connect to Southern Access Road (West));

- **Sub Phase C (2019-2021):** Town centre commences, including initial retail facilities, primary school, completion of Southern Access Road (West);
- **Sub Phase D (2021-2023):** Residential area to south and construction of town square and sports hub (east);
- **Sub Phase E (2023-2026):** Residential area established in former barracks area, continuation of town centre, primary school;
- **Sub Phase F (2026-2029):** Last residential area and completion of town centre and northern sports hub.

Other key land use phasing dates:

Town centre construction to commence in Phase C and is expected to continue to develop up to 2031 dependent on demand for retail and employment uses.

The Southern Access Road (West) would be constructed between 2017-2020. It is envisaged that construction works would commence in 2016 and be completed in 2031. First occupancy is expected in 2019. Non-residential buildings are expected to come forward post 2019.

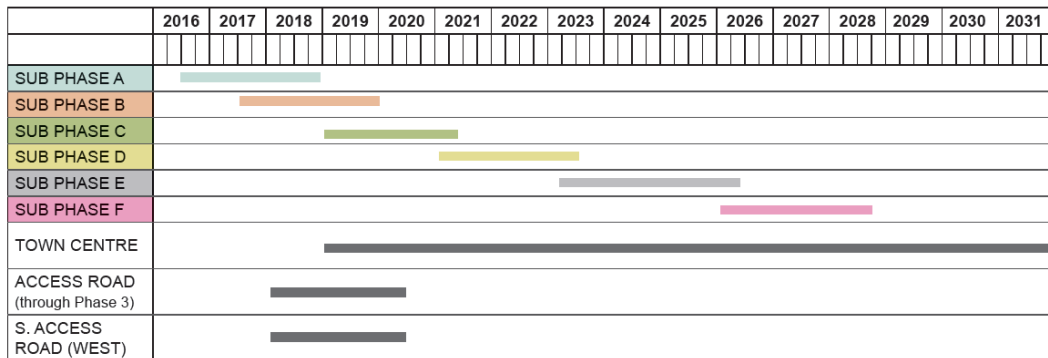


Figure 2: Construction phasing programme

3 Background to health impact assessment

3.1 What is health impact assessment?

Consideration of health is an important aspect of any major policy programme or project within the UK. The purpose of an HIA is to assess the health consequences of a policy, programme or project and to use this information in the decision-making process to maximise the positive and minimise the negative health impacts of a proposal.

HIA is a multi-disciplinary activity that cuts across the traditional boundaries of health, public health, social sciences and environmental sciences.

The most commonly used definition of HIA is taken from the World Health Organisation (WHO) Gothenburg Consensus Paper:

'.....a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population'¹.

3.2 National and regional policy context

HIA is promoted at European level in Article 152 of the Amsterdam Treaty; and at UK level in the Government White Paper Saving Lives: Our Healthier Nation (1999).

The Government White Paper: Choosing Health – Making Healthy Choices Easier (2004) outlined the importance of routinely considering the impact of 'non-health' interventions on population health both before implementing policies (through HIAs, for example) and afterwards through evaluation.

The Government White Paper: Healthy Lives, Healthy People: Our strategy for public health in England (2010) does not identify a specific requirement for HIA, but its policies and guidance support this approach.

The National Planning Policy Framework (NPPF, 2012), makes reference to the links between local planning authorities and health organisations. The national policy suggests future development should be assessed for any expected changes and barriers to health and well-being.

HIAs proactively seek to do just that, and therefore this policy can be noted in influencing the requirement to produce an HIA for new developments. The specific statement within the NPPF is within paragraph 171, addressing health and well-being, which is cited below:

'Local planning authorities should work with public health leads and health organisations to understand and take account of the health status and needs of the local population (such as for sports, recreation and places of worship), including expected future changes, and any information about relevant barriers to improving health and well-being.'

¹ WHO European Centre for Health Policy. (1999). Health impact assessment: main concepts and suggested approach. Gothenburg consensus paper. WHO Regional Office for Europe.

Since the revocation of the Regional Strategies in 2010 there are no appropriate regional policies to consider for the East of England.

The South Cambridgeshire Development Control Policies (2007) outlines a key objective to ‘ensure that major new developments create distinctive, sustainable and healthy environments to meet the needs of residents and users, and contribute towards the creation of vibrant, socially inclusive communities.’ It also highlights the requirement for major developments to submit an HIA to demonstrate that the principles of sustainable development have been applied.

The Development Control Policies will be superseded by the South Cambridgeshire Local Plan Proposed Submission (2013) when it comes into effect. The Local Plan states that ‘

‘New development will have a positive impact on the health and wellbeing of new and existing residents. Planning applications for developments of 20 or more dwellings or 1,000 m² or more floorspace will be accompanied by a Health Impact Assessment to demonstrate this.’

South Cambridgeshire District Council have also issued HIA Supplementary Planning Document (2011) which provides guidance on undertaking HIA to ensure that the creation of healthy and inclusive communities and that health impacts are adequately addressed during throughout the development process.

3.3 Definitions and determinants of health

Many groups concerned with health, including the WHO, advocate a wider, social understanding of health. The broader understanding of health is captured in the WHO definition:

‘Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity²’.

The social model of health³ considers the range of environmental, social, economic and fixed factors (or determinants) that influence health and wellbeing. The key determinants of health can be categorised as follows:

- Pre-determined factors such as age, genetic make-up and gender are fixed and strongly influence a person’s health status.
- Social and economic circumstances such as poverty, unemployment and other forms of social exclusion strongly influence health, and improving them can significantly improve health.
- How the environment in which people live, work and play is managed – its air quality, built environment, water quality – can damage health, or provide opportunities for health improvement.
- Lifestyle factors such as physical activity, smoking, diet, alcohol consumption and sexual behaviour, can have significant impacts on health.

² World Health Organisation (WHO), (2007). Constitution of the World Health Organization, Geneva, 1946.

³ Dahlgren and Whitehead (1991)

- Accessibility of services such as the National Health Service (NHS), education, social services, transport (especially public transport) and leisure facilities influence the health of the population.

Of these, only the pre-determined factors are unlikely to be influenced by a development proposal. The HIA will therefore consider all relevant health determinants other than pre-determined factors.

3.4 Guidance documents

The scoping phase of the Northstowe Phase 2 HIA will be steered by the Planning for Health ‘Rapid Health Impact Assessment Matrix’ and guidance produced by the NHS London Healthy Urban Development Unit (HUDU, 2013).

The aim of the matrix is to ensure that:

‘health is properly considered when evaluating and determining planning proposals and that where possible development plans and proposals have a positive rather than a negative influence on health’ .

The assessment methodology, including the assessment of significance of impacts will be developed from that outlined in the ‘The Merseyside Guidelines for Health Impact Assessment’. (Merseyside Health Impact Assessment Steering Group, May 2001).

4 Proposed HIA methodology and scope

The methodology described below has been designed to provide robust information on the health effects of Northstowe, to assist South Cambridgeshire District Council in its consideration of the outline planning application for the Northstowe development.

The HIA has been undertaken through a systematic process of:

- Scope definition;
- Policy Review;
- Baseline data gathering;
- Identifying health determinants
- Linking health determinants with health effects;
- Assessment of health impacts; and
- Development of evidence based recommendations and monitoring.

4.1 Scope definition

Geographical scope

The development will affect the health of existing communities in the surrounding villages and, in some cases, the wider South Cambridgeshire area. The health of the new community within Northstowe will be considered.

For a detailed analysis the area has been subdivided into a number of geographical units. This comprises the Super Output Areas (SOAs) which are designed for the collection and publication of statistics in a small area as follows:

- Lower Super Output Areas (LSOAs) – Originally generated during the 2001 Census, the geographical units were constrained by the Standard Table Wards. They have a minimum size of 1,000 residents and 400 households, but they were updated in the 2011 Census and there are now 34,753 LSOAs in England and Wales.
- Middle Super Output Areas – Generated automatically from groups of LSOAs in the 2001 Census. They had a minimum of 5,000 residents and 2,000 households and this was subsequently amended to suit local requirement such that there are now 7,201 MSOAs in England and Wales with an average population of 7,200.

The proposed Northstowe development site is located near to the villages of Longstanton and Oakington. The village of Oakington lies within the LSOA of South Cambridgeshire 003A, whilst Longstanton lies within the LSOA of South Cambridgeshire 003B. Both the two villages and the proposed site are within the MSOA South Cambridgeshire 003, which is located in South Cambridgeshire local authority in the East of England region⁴.

⁴ Office for National Statistics (ONS). Accessed 4 July 2014

The geographical scope will generally align with those outlined in the 2011 Census. The defined regions for the HIA will include:

- regional level comprises the East of England;
- the district level comprises South Cambridgeshire;
- the neighbourhood level comprises South Cambridgeshire 003 MSOA; and
- the LSOA levels are South Cambridgeshire 003A ('Oakington') and 003B ('Longstanton').

It should however be noted that there are some instances where information is not available at these levels and this will be specified where applicable, for example some health statistics provided by the NHS Cambridgeshire & Peterborough. There is no existing population within the Northstowe development site, but a demographic projection of the potential future population has been undertaken.

Temporal scope

Temporal scope: impacts on health will change throughout the phased development. For the purposes of the HIA the following assessment phases have been selected:

- **Construction:** Impacts on Phase 1 residents, existing villages and Rampton Drift;
- **Early occupation:** Impacts on Phase 1 residents, existing villages and Rampton Drift, and early occupants of Phase 2;
- **Full build out:** Impacts on Phase 1 residents, existing villages and Rampton Drift, occupants of Phase 2, and occupants of Phase 3.

4.2 Policy Review

National and local policies, plans and strategies relevant to health, including NICE public health guidance, will be reviewed to provide a rationale for the HIA. The policy review for the HIA will include local policies relevant to health such as:

- Local plan policies;
- Development control policies;
- Health and wellbeing strategies;
- Sustainable community strategies;
- Area action plans; and
- Supplementary planning documents.

The aim will be to identify local health policy and review how the Northstowe, Phase 2 development may impact on these, both positively and/or negatively.

4.3 Baseline data gathering

Baseline data will be collated from a range of sources to provide an overview of the existing population, existing health profile, socio-economic conditions in the local community and the physical environment in the locale.

The data reviewed will include, but is not limited to:

- Public Health England ‘Health Profiles’ 2014;
- Public Health England Active People Surveys;
- The Department of Communities and Local Government (DCLG) ‘The English Indices of Deprivation’ 2010;
- Office for National Statistics, Census 2011 data; and
- Joint Strategic Needs Assessments for South Cambridgeshire.

4.4 Identifying health determinants

An initial scoping exercise was undertaken by the HIA team to establish an appropriate ‘short-list’ of health determinants for the HIA. The scoping workshop was structured around the HUDU matrix and the resulting list of determinants for further assessment was based on an understanding of the characteristics of the proposed development and the local area.

The HUDU Rapid HIA Matrix identifies the following potential health determinants that may be relevant to a given project:

- housing quality and design
- access to healthcare services and other social infrastructure
- access to open space and nature
- air quality, noise and neighbourhood amenity
- accessibility and active travel
- crime reduction and community safety
- access to healthy food
- access to work and training
- social cohesion and lifetime neighbourhoods
- minimising the use of resources
- climate change

A review of the Northstowe Phase 2 development was conducted against the assessment criteria outlined under each determinant in the matrix. It established which issues have the potential to impact on health and wellbeing, and therefore which determinants would be examined in further detail in the assessment and which could be excluded.

A Scoping Workshop was then undertaken with representatives from South Cambridgeshire District Council (SCDC), Cambridgeshire County Council (CCC) the HCA and a local GP to agree and finalise the list of determinants for the HIA.

The initial outcomes are presented in Section 0.

4.5 Linking health determinants and health impacts

Using available literature, including previous health studies and recent research, an evidence base will be collated to identify links between the selected determinants and health impacts.

Impacts may be direct or indirect and links may be causal or compounding. Key reference material is likely to include:

- Government health policies, programmes and strategies;
- Previous HIAs for urban development projects;
- Peer-reviewed journal articles;
- Public health reports and research papers from a range of sources, including:
 - Department of Health (DH);
 - WHO;
 - National Institute for Health and Care Excellence (NICE);
 - Health Development Agency (HDA).

4.6 Assessment of health impacts

Impacts of the development on health determinants

The expected effects of the development on both the determinants of health will be identified, making use of a number of studies that form part of the planning application documents. Information from these studies will be used to inform the assessment of the effects of Northstowe on the determinants of health as shown in Table 1 below.

Table 5 Application documents relating to health determinants

Health Determinant	Application Documents
Housing quality and design	Planning Statement Design and Access Statement Energy Strategy
Access to healthcare services and other social infrastructure	Town Centre Strategy Planning Statement Retail Capacity and Impact Report
Access to open space and nature	Design and Access Statement Planning Statement Town Centre Strategy ES - Landscape Assessment
Air quality, noise and neighbourhood amenity	ES – Air Quality Assessment Construction Environmental Management Plan (CEMP) ES Noise Chapter
Accessibility and active travel	Transport Strategy Planning Statement Transport Assessment

Health Determinant	Application Documents
	Town Centre Strategy Design and Access Statement
Crime reduction and community safety	CEMP Planning Statement Design and Access Statement Consultation and Engagement Report
Access to healthy food	Open Space and Recreation Strategy Town Centre Strategy
Access to work and training	ES – Socio-economic Assessment Planning Statement Town Centre Strategy Economic Development Strategy
Social cohesion and lifetime neighbourhoods	Planning Statement Town Centre Strategy
Minimising the use of resources	CEMP Waste Strategy Sustainability Report
Climate change	Energy Strategy Sustainability Report Planning Statement

Impacts on health and wellbeing

The impact of the proposed development on the determinants of health has knock-on effects on the actual health and wellbeing of the populations affected by the development. These will be assessed on the basis of known causal linkages identified through the literature review (see paragraph 2.6.3 above).

The assessment of health impacts will be undertaken on a purely qualitative basis. Potential changes in health based statistics will not be quantified, since these have a wide and complex range of contributory factors, many of which are not related to the proposed development. The purpose of the assessment is to identify opportunities to improve the factors affecting the health and wellbeing of communities, rather than to predict changes in disease prevalence.

Distinctions have been made between the following impact types:

- **Timing of impact:** most impacts will occur at the construction and operational stages. The assessment will distinguish between the initial / early occupation and later occupational stages when full build-out has been achieved.
- **Source of impact:** these will be clearly defined and include construction activities, construction workforce, occupation of Northstowe by the new population, traffic (both construction and operational), urbanisation, physical infrastructure etc.
- **Receptors:** these may be geographical areas (within Northstowe, local villages or the wider district), or particular vulnerable groups (the elderly, young people, families, ethnic minorities etc).

Assessing the significance of impacts

The significance of potential health effects will be assessed according to the criteria described in the Merseyside Guidelines for Health IMPACT Assessment (Scott-Samuel et al). The Guidelines involve the classification of effects in three different ways:

- Determining the nature of the impact;
 - Assessing its measurability; and
 - Estimating the degree of certainty or risk as described below:
- The **nature** of the impact is classified either as positive or negative;
 - The **measurability** is defined on a three point scale of qualitative, estimable or calculable;
 - The **degree of certainty** of the impact is classified using the terms speculative, probable and definite:
 - **speculative** effects occur where linkages between the determinant and health effects have been established but where a reasonable level of action is required to take up the opportunities available;
 - **probable** effects are generally those where linkages between the determinant and health have been established and where the effects do not require individuals or organisations to take a particular course of action; and
 - **definite** effects are those which are considered to be inevitable.

The Guidelines stress that definite, quantifiable effects are not necessarily more important in the assessment than speculative and qualitative effects.

The assessment will also consider the cumulative effects of changes in a number of determinants on a given receptor (i.e. cumulative impacts from changes in the air quality, noise and visual environment on a residential receptor).

Health inequalities and the potential for disproportionate impacts on certain vulnerable groups will be taken into account in the assessment.

4.7 Recommendations and monitoring

Where impacts are identified in the HIA, recommendations will be proposed to reduce any negative impacts and maximise any positive impacts on health from the proposed development.

A number of potential health issues identified in the assessment will have been partially or fully mitigated through measures contained in the masterplan and supporting strategies and the EIA process. These will be identified and cross-referenced in the HIA where relevant. Where necessary, further recommendations will be proposed to reduce the negative effects and maximise the positive effects on health of the proposed development.

Where recommendations are put forward, the responsibility and timing of actions required to implement them will also be suggested. In some cases the responsibility may rest with the scheme promoters at a later design and planning

stage, and in others action would need to be taken by other parties, such as service providers. In such cases the recommendations should be seen as pointers to guide the future planning and management of the development, rather than as commitments to action on the part of third parties. A number of issues raised are likely to be taken forward through statutory processes such as Section 106 negotiations between the scheme promoters and South Cambridgeshire District Council.

4.8 Reporting

The findings of the HIA will be presented as a free standing HIA Report which will be submitted with the planning application.

4.9 Consultation

During the HIA process, discussions will be held with stakeholders to ensure that the approach is robust and comprehensive.

Feedback from the stakeholders will be reviewed to gain an understanding of the issues of greatest concern to local communities.

4.10 Limitations of the study

Literature and baseline data used in the study will be limited to readily available published sources, and the information contained within the Environmental Statement and other application documents will be heavily relied on to characterise the study area and identify effects on health determinants.

The approach to the assessment of health effects will be qualitative, identifying likely positive and negative effects based on the connections between determinants and health identified within the literature. The assessment will not attempt to quantify the actual changes in population health resulting from the development.

5 Initial scoping outcomes

As outlined in paragraph 4.2.6, a scoping workshop structured around the HUDU matrix was used to identify the scope of health determinants relevant to the Northstowe Phase 2 development.

A copy of the completed HUDU matrix is provided in Appendix 1. This provides information on:

- Which determinants are likely to be affected by the proposed development;
- Whether they will be affected during construction and/or operation;
- What the potential health impact is likely to be (i.e. positive, negative or neutral); and
- Also identifies initial considerations for the design team to reduce any potential negative impacts, and enhance any potential positive impacts on health.

The initial scoping assessment allowed the prioritisation of determinants for further assessment. Given the scale and nature of the development, all determinants were considered relevant for this HIA. As a result, none were scoped out. Therefore, the following determinants will be subject to further assessment within the HIA.

- Housing quality and design;
- Access to healthcare services and other social infrastructure;
- Accessibility and active travel;
- Access to open space and nature; and
- Crime reduction and community safety.
- Air quality, noise and neighbourhood amenity;
- Access to healthy food;
- Access to work and training;
- Social cohesion and lifetime neighbourhoods;
- Minimising the use of resources; and
- Climate change.

6 Next steps

An HIA report will be produced for submission with the planning application for the Northstowe Phase 2 development in August 2014.

Appendix A

HUDU Matrix

A1 HUDU Planning for Health ‘Rapid Health Impact Assessment Matrix

PS – Planning Statement

ES – Environmental Statement

TCS – Town Centre Strategy

EnS – Energy Strategy

D&A – Design and Access Statement

CEMP – Construction Environmental Management Plan

ORS – Open Space and Recreation

HH – Hyder Heartbeat

TP – Travel Plan

TA – Transport Assessment

WS – Waste Strategy

EDS – Economic Development Strategy

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
Housing quality and design					
1.1	Does the proposal seek to meet all the health and wellbeing credits contained in the Code for Sustainable Homes?	Construction: N/A Early occupation/full build-out: Yes	[PS] All houses will meet a minimum of Level 4 of the Code for Sustainable Homes, and the proposed 2016 Zero Carbon standard with a fabric first approach;	Positive	

⁵ i.e: Construction (Impacts on Phase 1 residents, existing villages and Rampton Drift),
Early occupation (Impacts on Phase 1 residents, existing villages and Rampton Drift, and early occupants of Phase 2)
Full build out (Impacts on Phase 1 residents, existing villages and Rampton Drift, occupants of Phase 2, and occupants of Phase 3)

⁶ Letters in brackets denote other planning documents that information is available in. Full guide to acronyms is provided at the end of the matrix.

⁷ i.e: The nature of the impact is classified either as positive, negative or unknown;

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
1.2	Does the proposal address the housing needs of older people, i.e. extra care housing, sheltered housing, lifetime homes and wheelchair accessible homes?	Construction: N/A Early occupation/ full build-out: Yes	[PS] A proportion of homes will be built to the Lifetime Homes Standard, including all affordable homes (with the aspiration to exceed the Submission Local Plan requirements of all affordable homes and 5% of market homes where possible and viable.	Positive	
1.3	Does the proposal include homes that can be adapted to support independent living for older and disabled people?	Construction: N/A Early occupation/ full build-out: Yes	[PS] There is a clear aspiration for Northstowe to provide high quality housing, with a well-integrated mix of types, tenures and sizes to meet the identified needs of all ages and sectors of the community.	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
1.4	Does the proposal promote good design through layout and orientation, meeting internal space standards?	Construction: N/A Early occupation/ full build-out: Yes	<p>[PS] The Exemplar Addendum sets out the following standards to be reached in relation to housing:</p> <ul style="list-style-type: none"> • innovative approach to the architectural design and delivery of affordable homes and the private rental market, including a range of flexible house styles, tenure-types, live-work and self-build; • provision for co-housing and self-build dwellings should be made; • a 33-50% reduction on mains water use compared with conventional housing where this is technically and financially practicable; and • residents and landlords to be able to purchase a range of sustainable energy products to complement the home at the point of purchase. <p>The applicant will set a minimum size for all homes which will be informed by the minimum space standards contained in the Submission Local Plan.</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
1.5	Does the proposal include a range of housing types and sizes, including affordable housing responding to local housing needs?	Construction: N/A Early occupation/full build-out: Yes	<p>[PS] Residential – up to 3,500 units.</p> <p>Phase 2 will provide a mix of market properties broadly aligned with the requirements of the NAAP and will provide:</p> <p>33% one or two bedrooms (30% combined Phase 1 and Phase 2);</p> <p>41% three bedrooms (43% combined Phase 1 and Phase 2); and</p> <p>26% four or more bedrooms (27% combined Phase 1 and Phase 2).</p> <p>Phase 2 will provide a percentage of affordable housing, which will be pepper-potted throughout the housing areas. The proportion of affordable housing will be determined as part of a process of negotiation with the local planning authority regarding planning obligations. It is anticipated that the level of affordable housing is unlikely to be less than 20% of the overall number of units. Whilst it is not appropriate to set out full details of the types of housing to be delivered in Phase 2, it is likely that Northstowe will include starter homes, live-work units, and opportunities for self-build</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
1.6	Does the proposal contain homes that are highly energy efficient (e.g. a high SAP rating?)	Construction: N/A Early occupation/full build-out: Yes	<p>[EnS] An energy strategy has been prepared to ensure that Phase 2 of the Northstowe development meets the sustainability aspirations and key development priorities, Building Regulations requirements and planning targets. A fundamental premise of the energy strategy is that the development will be post implementation of the 2016 Building Regulations; which are set to implement zero carbon buildings standards. The strategy has adopted the approach advocated by the ZCH relative to future energy demand reduction targets and approaches relative to achieving zero carbon emissions:</p> <ol style="list-style-type: none"> 1. Mandatory Fabric Energy Efficiency (FEE) Level – To ensure energy efficiency by energy efficient building design. 2. Mandatory onsite Carbon Compliance Level – To ensure energy efficiency by energy efficient building design and to reduce carbon emissions through on-site low carbon and renewable energy technologies and near-site heat networks. 3. Mitigate the remaining carbon emissions through use of ‘Allowable Solutions’. 	Positive	

Access to healthcare services and other social infrastructure					
2.1	Does the proposal retain or re-provide existing social infrastructure?	Construction: N/A Early occupation/ full build-out: No	There is no existing social infrastructure. See below for details on new infrastructure.	N/A	
2.2	Does the proposal assess the demand for healthcare services and identify requirements and costs using the HUDU model?	Construction: N/A Early occupation/ full build-out: Yes	[TCS] The anticipated age profile will influence the planning of other uses, particularly of community, health and social facilities. Modelling the floorspace for these uses has been based on projected population size and likely demand. Detail regarding the delivery of the community uses is discussed in the Development Framework Document but will form part of Phase C of the development. However, this does specifically state that 'Other Community Uses (including healthcare facilities)', will be allocated throughout the town and local centres. Thresholds for delivery of facilities will be negotiated through the Section 106.	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
2.3	Does the proposal provide for healthcare services either in the form of a financial contribution or in-kind? Does a healthy facility provided as part of the development match NHS requirements and plans?	Construction: N/A Early occupation/full build-out: Yes	[TCS] The level of floorspace estimated by retail studies to be viable at Northstowe has been integrated into the town centre masterplan and provides sufficient flexibility to accommodate the evolving plans for social uses.	Positive	[HH] Make sure GP surgery and Pharmacy are provided in timely manner.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
2.4	Does the proposal address the capacity, location and accessibility of other social infrastructure, .e.g. schools, social care and community facilities?	Construction: N/A Early occupation/full build-out: Yes	<p>[PS] The town centre for Northstowe, will contain a variety of uses including:</p> <ul style="list-style-type: none"> • retail and food and drink; • employment uses; • health facilities; • civic hub; • community meeting space and youth facilities; • place of worship; • crèche; and • library. <p>Proposed phasing is discussed in the Design and Access Statement which states that Phase 2 would be built out in sub-phases to allow for key facilities to come forward for use by the first residents of Northstowe so that the community can start establishing itself and the market demand for facilities early.</p>	Positive	<p>Consider early/timely provision of community facilities.</p> <p>Consider community development workers.</p>

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
2.5	Does the proposal explore opportunities for shared community use and co-location of services?	Construction: N/A Early occupation/ full build-out: Yes	[TCS] Flexibility is integral to the masterplanning of Northstowe. Community and civic buildings should be designed to accommodate multiple complementary uses. [TCS] Strategy proposes early temporary uses, a range of unit sizes and a balanced mix of uses.	Positive	Consider flexible space
2.6	Does the proposal contribute to meeting primary, secondary and post 19 education needs?	Construction: N/A Early occupation/ full build-out: Yes	[PS] Provision has been made for two primary schools (each 2FE) and one secondary school (12FE). The secondary school that is included within the application which is planned for opening for the September 2018 intake will serve the complete Northstowe development and surrounding villages.	Positive	

Access to open space and nature					
3.1	Does the proposal retain and enhance existing open and natural spaces?	<p>Construction: Yes</p> <p>Early occupation/ full build-out: Yes</p>	<p>[PS] In total, some 43.6 ha of open space provision has been provided within Phase 2, not including the eastern sports hub or the remainder of the western sports hub. The proposals are therefore in accordance with the requirements set out in both existing and emerging local policy.[planning statement]</p> <p>A variety of typologies have been included in order to provide legibility, contribute to local character and meet the informal recreational needs of residents, workers and visitors. The open space will allow for a wide variety of recreational activities to be undertaken, including sports, walking, informal play and horticulture.</p> <p>The proposals include significant levels of formal and informal open space, including the eastern sports hub and completion of the western sports hub, green separation between Longstanton and Northstowe, formal and informal greenways running east-west, and smaller pockets of open space across the development.</p>	Unknown	Minimise any loss of open space required for construction activities. Any reinstated open space post construction should be of a quality that existed prior to construction where possible.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
3.2	In areas of deficiency, does the proposal provide new open or natural space, or improve access to existing space?	Construction: N/A Early occupation/ full build-out: N/A	No areas of deficiency currently exist.	N/A	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
3.3	Does the proposal provide a range of play spaces for children and young people?	Construction: N/A Early occupation/ full build-out: Yes:	<p>[PS] In accordance with the DFD, sufficient facilities will be provided to cater for the following catchment zones:</p> <p>Local Area for Play (LAP): 100m catchment zone</p> <p>Local Equipped Area for Play (LEAP): 400m catchment zone</p> <p>Neighbourhood Equipped Area for Play (NEAP): 1,000m catchment zone</p> <p>The eastern sports hub and western sports hub extension together deliver 13.74ha of land for outdoor sports, providing sufficient land for a range of different sports facilities including:</p> <ul style="list-style-type: none"> • a football pitch; • a rugby pitch; • an artificial turf pitch; and • a multi use games area (MUGA). 	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
3.4	Does the proposal provide links between open and natural spaces and the public realm?	Construction: N/A Early occupation/ full build-out: Yes:	<p>[PS] The proposal includes a number of new biodiversity features, designed to create new habitat for wildlife as well as act as corridors to provide connectivity between these areas and the wider landscape.</p> <p>Informal greenways have been established through Phase 2 to connect biodiversity features within and beyond the town and create a network of habitats. Swathes of open, rough grassland will be interwoven with meadows, sporadic tree clusters, shrubs and pedestrian and cycle ways.</p> <p>The proposals ensure a high degree of connectivity between Northstowe and the wider fen landscape for both wildlife and people.</p> <p>[TCS] – Town centre will be linked, by green routes, to the water park on the eastern edge taking in educational and recreational facilities on the way. It will also be linked to Longstanton with cycle/pedestrian routes.</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
3.5	Are the open and natural spaces welcoming and safe and accessible for all?	Construction: N/A Early occupation/ full build-out: Yes:	[DAS] Extensive open space is to be provided (a net increase of approximately 23ha) as part of Phase 2. This will include a range of informal and formal facilities, which should help to afford safe access to open space for all users	Positive	
3.6	Does the proposal set out how new open space will be managed and maintained?	Construction: N/A Early occupation/ full build-out: Yes:	[PS] Grazing will be managed to allow certain areas to grow long, while also preventing scrub and trees from encroaching into open grassland areas.	Positive	

Air quality, noise and neighbourhood amenity					
4.1	Does the proposal minimise construction impacts such as dust, noise, vibration and odours?	Construction: Yes	<p>[PS] Haul roads will be located and designed to minimise noise, odour, dust and visual impacts on existing and new residents, businesses, visitors and habitats.</p> <p>Traffic flows will be monitored to ensure that the public have a mechanism to feed back any concerns.</p> <p>Construction impacts should be minimised through the effective implementation of the CEMP</p> <p>[ES] Standard dust control measures are recommended as part of the mitigation strategy and a Dust Control Management Plan is proposed</p> <p>Best Practicable Means to be implemented at each area of construction. This would mean mitigation implemented at each part of the site would depend on the proximity of receptors, the type of works and the plant to be used</p>	Negative	Monitor CEMP measures to ensure that they have been effective in mitigating impacts associated with dust and noise / vibration.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
		Early occupation: Yes:	[ES] No specific assessment has been undertaken for those users within the first sub-phases of the proposed development . Assumed that the mitigation measures proposed in the ES for sensitive noise / air quality receptors would be replicated for early occupiers.	Negative	Establish whether the monitoring of construction effects relating to air quality and noise / vibration needs to be proposed within the CEMP and undertaken during the latter sub-phases of development.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
		Full build-out: Yes:	<p>[ES] No operational noise has been identified as a result of the proposed development. A site suitability assessment has been included within the scope of the noise and vibration assessment, which states that the site is suitable for development with appropriate siting of sensitive receptors.</p> <p>Air quality effects during operation are not considered to be significant. However, as best practice a Travel Plan is proposed, which will seek to reduce vehicle movements associated with the development by encouraging sustainable forms of transport.</p> <p>It is reported that the proposed Energy Centre is unlikely to have any significant impacts on local sensitive receptors/</p>	Positive	<p>Enhancement of potential journeys made by foot and bicycle where possible.</p> <p>Ensure energy centre is designed with low-carbon fuel in mind.</p>

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
4.2	Does the proposal minimise air pollution caused by traffic and energy facilities?	Construction: Yes	[ES] The ES has assessed that construction traffic effects are not likely to be significant, as defined in the Environmental Protection UK (EPUK) guidance, as the construction phase is not expected to lead to an increase of over 200 Heavy Goods Vehicles	Negative	
		Early occupation: Yes:	[ES] Sensitive receptors will be sited away from the main source of traffic emissions (A14) so that is unlikely to be any cumulative impact with ongoing construction traffic movements.	Unknown	Location of sensitive receptors within the site boundary.
		Full build-out: Yes:	[ES] The promotion of a site Travel Plan will help maximise sustainable journeys within and outwith the site. Operational traffic associated with the development is not likely to have significant effects on local roads	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
4.3	Does the proposal minimise noise pollution caused by traffic and commercial uses?	Construction: Yes	[ES] No construction routes are available at this time, but it is assumed that any contractor would manage the deliveries made by supplier so that no backlog of HGVs occur and delivery wagons are not sitting idling in proximity to sensitive receptors. [CEMP] The mitigation measures contained in the CEMP will use Best Practicable means to control the noise effects of construction traffic	Negative	
		Early occupation: Yes:	[ES] No effects are reported in the ES as a result of the interaction of construction and operational traffic, or commercial activities. This has been achieved through careful site planning and design.	Positive	Monitor CEMP measures to ensure that they have been effective in mitigating impacts associated with noise.
		Full build-out: Yes:	[ES] No effects are reported in the ES as a result of operational traffic or commercial activities. This has been achieved through careful site planning and design.	Positive	

Accessibility and active travel					
5.1	Does the proposal prioritise and encourage walking (such as through shared spaces)?	Construction: N/A Early occupation/ full build-out: Yes:	<p>[TS] The transport strategy for Phase 2 encourages sustainable travel and aims to lessen the impact of traffic on the road network by making walking and cycling the easiest and most attractive way to get around.</p> <p>A comprehensive network of cycle and walking routes will be provided throughout the development and to the surrounding area. Key connections include:</p> <ul style="list-style-type: none"> • North west to south east following the busway through the centre of the development; • Following the Busway on the eastern and northern side to connect to the CGB walking, cycling and bridleway route via a proposed new crossing; • On Rampton Drift from Longstanton Village Centre; • Alongside the water park on the eastern side; • Crossing west to east through the development in a number of 	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
			<p>locations, connecting homes to the town centre, schools and sports facilities;</p> <ul style="list-style-type: none"> • Alongside the east and west Primary Roads; and • Connecting to Woodside in the west. 		

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
5.2	Does the proposal prioritise and encourage cycling (for example by providing secure cycle parking, showers and cycle lanes)?	Construction: N/A Early occupation/ full build-out: Yes:	[TS] A comprehensive network of cycle and walking routes will be provided throughout the development including a route along the Northstowe side of the Cambridgeshire Guided Busway. Linkages will be provided to and from Longstanton and along the routes of the proposed new road links and Rampton Road will eventually become pedestrianised. Cycle parking will be provided throughout the site with an aim for the development is to provide a higher level of cycle parking and storage provision than the standards to promote cycling as a main mode of travel for residents, shoppers, students and employees at Northstowe.	Positive	
5.3	Does the proposal connect public realm and internal routes to local and strategic cycle and walking networks?	Construction: N/A Early occupation/ full build-out: Yes:	[PS] A dedicated, accessible network of non-motorised rights of way. This includes cycle, pedestrian and horse riding routes, both within Northstowe and connecting to the wider rights of way network.	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
5.4	Does the proposal include traffic management and calming measures to help reduce and minimise road injuries?	Construction: Yes	<p>A scheme will be introduced to avoid construction vehicles travelling through villages in the locality.</p> <p>[TA] Once the Southern Access Road (SW) is complete, all construction vehicles will access the development from the A14 at Bar Hill, and the Southern Access Road (SW). Construction Traffic Management Plans will be in place to ensure there is no access from local roads.</p> <p>From the roundabout junction of the Southern Access Road (SW) and the Primary Road through Phase 3 (to the south of Longstanton Road), a construction haul route will be provided using the existing eastern perimeter road. This will be only for construction vehicles and will enable a separation of construction and operational traffic during the build out of the development.</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
		<p>Early occupation/ full build-out: Yes:</p>	<p>[TS] Careful consideration has been given to the design of access roads to ensure there will be no ‘rat-running’ of traffic through nearby villages.</p> <p>The internal road layout will involve two primary routes running from north to south, as well as a secondary and tertiary road network. A clear hierarchy of streets is proposed, reflecting key movement routes and the distribution of land uses across Phase 2.</p> <p>The Primary Roads will be designed as 30 mph roads with changes in alignment to discourage traffic speeding and provide access, without making journeys by car significantly advantageous over other modes.</p>	<p>Positive</p>	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
5.5	Is the proposal well connected to public transport, local services and facilities?	Construction: N/A Early occupation/ full build-out: Yes:	<p>[PS] Transport and access are key to the success of Northstowe, both within the new town and to the surrounding area and beyond. The NAAP also calls for high quality public transport and associated infrastructure, including a dedicated local busway.</p> <p>A priority busway through the centre of Northstowe will link to the Cambridge Guided Busway, as well as being used by local bus services. During the development of Phase 2, a short section of the route will temporarily be shared with general traffic. High quality bus stops will mean that most residents are within only 400m of a bus stop. Bus stops will be provided with a shelter with seating, real time information and appropriate kerbing to allow low floor access for local buses and access to Guided buses (which require a higher kerb height).</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
5.6	Does the proposal seek to reduce car use by reducing car parking provision, supported by the controlled parking zones, car clubs and travel plan measures?	Construction: N/A Early occupation/ full build-out: Yes:	[TA] Provision will not be more than the maximum SCDC standard; It is assumed that the overall provision will include at least 5% of spaces designated for disabled users in line with parking standards. Provision of parent and child spaces and motorcycle parking will also be required.		Travel plan measures to encourage the use of sustainable transport

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
5.7	Does the proposal allow people with mobility problems or a disability to access buildings and places?	Construction: N/A Early occupation/ full build-out: Yes:	<p>[TCS] the TCS recognises that not all visitors will be able to use the CGB to access the town centre easily. For example, residents of local villages that are not served by the guided busway, visitors who want to buy bulky goods or those who have mobility problems cannot necessarily use public transport to access Northstowe. The balance to be reached regarding car parking is to provide enough space that the town centre is accessible to those who need to travel by car, without encouraging additional car use.</p> <p>[DAS] All elements of the development will be compliant with the requirements of the Disability Discrimination Act 2005. Accessibility measures will include level thresholds for building entrances, clear but detailed signage and wayfinding, dropped kerbs, high quality bus facilities and a careful design of street spaces and public realm.</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
Crime reduction and community safety					
6.1	Does the proposal incorporate elements to help design out crime?	Construction: Yes	[CEMP] Full details of site security measures are contained within the CEMP. The site will be fully secured and measures taken to ensure that no fly-tipping occurs.	Positive	Ensure that site security measures are fully implemented and audited.
		Early occupation/ full build-out: Yes	[PS] [DAS] All aspects of the proposed development will meet 'Secured by Design' principles. The specific aspects of the development to ensure this will be developed at detailed design stage.	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
6.2	Does the proposal incorporate design techniques to help provide people feel secure and avoid creating 'gated communities'?		<p>[DAS] Detailed design will take into account Secured by Design standards to protect homes, commercial premises and other buildings and spaces from crime.</p> <p>Disposition of windows will be designed in such a way that they will promote overlooking of streets, mews and backyards optimising natural surveillance of properties, streets and public spaces</p>	Positive	A design and crime workshop should be held early in the detailed design process.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
6.3	Does the proposal include attractive, multi-use public spaces and buildings?	Construction: N/A Early occupation/full build-out: Yes	[TCS] The proposals include a number of multi-use public spaces and buildings including: Town square – which could provide an opportunity for a marketplace and live events showcasing Community and civic buildings designed to accommodate multiple complementary uses. [DAS] The integration of well-designed public spaces that facilitate multiple uses is central to the circulation policy	Positive	Consider town centre rangers to take action on graffiti, littering, anti-social behaviour and littering – as well as promotional events.
6.4	Has engagement and consultation been	Construction: Yes	Engagement and consultation has been carried out with the local community,	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
	carried out with the local community?	Operation: Yes	including: <ul style="list-style-type: none"> • A number of public consultation events. • Community group meetings with the residents of Rampton Drift. • Meetings with SCDC and CCC. • Provision of regular updates to members of the Northstowe Parish Forum. 		

Access to healthy food					
7.1	Does the proposal facilitate the supply of local food, i.e. allotments, community farms and farmers' markets?	Construction: N/A Early occupation/ full build-out: Yes	<p>[OSR] The Submission Local Plan includes an additional requirement of 0.4ha per 1,000 people for allotments and community orchards.</p> <p>[TCS] The town square could provide an opportunity for a marketplace and live events showcasing the best that Cambridgeshire has to offer. The TCS sets out that the town square should be designed to allow for the equipment, facilities and circulation needed to host an outdoor market effectively.</p> <p>[DAS] Local food production is recognised as being a key guiding principle for Northstowe. Approximately 1.5ha of allotments will be provided within the proposed development</p>	Positive	Good location of allotments is important, taking account of accessibility and local climate / sunlight.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
7.2	Is there a range of retail uses, including food stores and smaller affordable shops for social enterprises?	Construction: N/A Early occupation/ full build-out: Yes	[TCS] The TCS states that there should be an emphasis on encouraging small and medium enterprises to provide retail, service and leisure opportunities in addition to the national operators you may expect in a town centre of this size. [TCS] Capacity studies also indicate that there will be a need for food retailer floorspace early in the development of the town centre.	Positive	
7.3	Does the proposal avoid contributing towards an over-concentration of hot food takeaways in the local area?	Construction: N/A Early occupation/ full build-out: Yes	[TCS] The HCA and stakeholders will explore suitable structures for the management of the town centre area to enable a cohesive and vibrant town centre experience.	Unknown	Consideration should be given to avoiding an over-concentration of hot food takeaways in the local area?

Access to work and training					
8.1	Does the proposal provide access to local employment and training opportunities, including temporary construction and permanent 'end-use' jobs?	Construction: Yes	[ES] It is estimated that during the construction phase there will be the generation of 284 FTE direct construction jobs. Furthermore, it is estimated that indirect and induced employment would contribute 798 net additional FTE jobs within the Primary Study Area (Bar Hill; Cottenham; Girton; Histon and Impington;	Positive	Local recruitment and training schemes Link into (or create) local apprentice schemes
		Operation: Yes	[PS] Phase 2 delivers the entirety of the town centre. The town centre proposals have been laid out and phased so as to have the potential to serve the whole of Northstowe once completed. Provision has been made for a variety of uses, including retail, food and drink, offices and leisure facilities, as well as residential, civic, health and other community uses. In total, 57,500m ² GIA of non-residential floorspace has been included within the proposals. The town centre will also include approximately 21,200 m ² GIA of employment floorspace for offices, research and development and light industry appropriate in a residential area	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
			<p>(Use Class B1 Business).</p> <p>[EDS] The volume of residential development planned over an extended period provides an opportunity for education and skills organisations to invest in skills development programmes, projects and facilities that provide practical hands-on opportunities for training.</p> <p>[ES] It is anticipated that the overall net economic benefits brought about through the operational stage of Phase 2 would comprise:</p> <ul style="list-style-type: none"> • 1,857 net additional FTE jobs within the Primary Study Area by 2031 • 2,248 net additional FTE jobs within the Secondary Study Area by 2031. 		

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
8.2	Does the proposal provide childcare facilities?	Construction: N/A Early occupation/ full build-out: Yes	Potential for this use in Town Centre or co-located with the primary schools. This will be determined during the detailed design stage.	Positive	Detailed design should seek to ensure that childcare facilities are located at the most appropriate place, or places, within the proposed development.
8.3	Does the proposal include managed and affordable workspace for local businesses?	Construction: N/A Early occupation/ full build-out: Yes	No specific details are included with planning documents	Positive	Consideration of affordable units or live/work spaces for local small businesses.
8.4	Does the proposal include opportunities for work for local people via local procurement arrangements?	Construction: Yes Early occupation/ full build-out: Yes	No specific details relating to procurement have been considered at this stage.	Positive	Consider procurement strategy as part of future contractual arrangements.

Social cohesion and lifetime neighbourhoods					
9.1	Does the proposal connect with existing communities, i.e. layout and movement which avoids physical barriers and severance and land uses and spaces which encourage social interaction?	Construction: N/A Early occupation/ full build-out: Yes	[DAS] The overall landscape masterplan concept proposes the creation of a wide range of landscape typologies that respond to the diverse needs of the new and existing communities. Social interaction will be encouraged, whilst preserving the boundaries of existing communities.	Positive	
9.2	Does the proposal include a mix of uses and a range of community facilities?	Construction: N/A Early occupation/ full build-out: Yes	[TCS] Town square should act as the main gathering point for residents and visitors. The town square will have three main modes of use – default, market and event. The town square should accommodate a variety of uses and facilities to promote activity throughout the day. Cafes, restaurants and performances should be encouraged to inhabit the square.	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
9.3	Does the proposal provide opportunities for the voluntary and community sectors?	Construction: N/A Early occupation/ full build-out: Yes	The NAAP refers to the need to establish a Town Council for Northstowe. This will provide opportunities for the voluntary/community sector to contribute to the development and social cohesion of Northstowe.	Positive	
9.4	Does the proposal address the principles of Lifetime Neighbourhoods?	Construction: N/A Early occupation/ full build-out: Yes	Although there is no specific commitment to the principles of lifetime homes, a proportion of homes will be built to these standards. In addition, the proposals do meet the key components with regard to resident empowerment, access, services and amenities, built and natural environments, social networks and housing.	Positive	
Minimising the use of resources					

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
10.1	Does the proposal make best use of existing land?	Construction: Yes Early occupation/ full build-out: Yes	[ES] Whilst there are areas of greenfield within the site, the proposed development encompasses the former site of RAF Oakington. The area three barracks buildings, with no current use; slabs remaining from demolished buildings; remaining facilities associated with the barracks including sports amenities and green space; and a water tower	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
10.2	Does the proposal encourage recycling (including building materials)?	Construction: Yes	<p>[HH] The HH identifies that key documents have been produced that identify a range of measures targeting waste. The Site Waste Management Plan is concerned with construction materials and waste, the Waste Strategy is concerned with construction and operational waste and Construction Environmental Management Plan sets out environmental protection and sustainable approach to construction phase.</p> <p>[CEMP] The CEMP explicitly promotes the sustainable use of construction materials.</p> <p>[WS] The WS and Site Waste Management Plan sets out detailed measures to minimise, reuse and recycle construction, demolition and excavation waste where possible. The WS also sets out the details of recyclables segregation and storage in the proposed development.</p>	Positive	Ensure that site audits are undertaken to monitor the implementation of CEMP procedures.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
		Early occupation/ full build-out: Yes	<p>[WS] It is anticipated that any non-hazardous waste generated during demolition may be reused on-site for landscaping or other purposes, therefore only minimal volumes of non-hazardous material may require disposal off-site.</p> <p>Where space permits, a specific area will be laid out and labelled to facilitate the separation of materials for potential recycling, reuse and return.</p> <p>[WS] The proposed development offers a unique opportunity to make waste management infrastructure a key part of the urban environment.</p> <p>A household Recycling Centre will be located in the employment area in Phase 1. Bring sites will also be established.</p> <p>Internal waste storage containers that are easily accessible to residents will be provided within the kitchens of all residential units. The containers will have a total capacity of 35 to 40 litres and</p>	Positive	<p>Details to be considered as part of the detailed design.</p> <p>Community composting project - compliant with the third tier of the waste hierarchy (recycling) a community composting project could possibly be established.</p> <p>Public Incentives Scheme - a scheme could be implemented to incentivise participation in recycling including performance</p>

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
			<p>should be divided to allow the separation of recycling from refuse and, where appropriate, organic waste for composting.</p> <p>Based on the guidance contained in section 4.7 of the RECAP Guide, each house will have a suitable hard surface within the curtilage of the property of sufficient size onto which the required external storage containers (with an aggregated capacity of 775 litres) will fit. This is assumed to be three wheeled bins for refuse, recycling and compostable waste.</p> <p>A brown 240 litre wheeled bin for mixed organics;</p> <p>A blue 240 litre wheeled bin for co-mingled recyclables; and</p> <p>A green 240 litre wheeled bin for residual waste.</p>		<p>based charging schemes.</p>

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
10.3	Does the proposal incorporate sustainable design and construction techniques?	Construction: Yes	[WS] The waste strategy states that the design should consider the WRAP five key principles to reduce construction waste.		Principal Contractor should: <ul style="list-style-type: none"> • Monitor waste arisings and management practices. • Set performance targets for recycling and segregation. • Use materials and processes that have low embodied carbon footprint

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
		<p>Early occupation/ full build-out: Yes</p>	<p>[HH] There have been a number of key objectives set out to ensure that development delivers sustainable, adaptable and low carbon buildings and spaces in the community that meet relevant Secure by Design and Zero Carbon standards. Residences will also meet Code for Sustainable Homes and Lifetime Homes standards and non-residential buildings will achieve BREEAM Excellent.</p>		

Climate change					
11.1	Does the proposal incorporate renewable energy?	Construction: N/A Early occupation/ full build-out: Yes	<p>[EnS] The preferred option is site wide building mounted Solar PV to meet 100% of the Carbon Compliance Target. The focus is on achieving the zero carbon target through predominantly on-site and/or direct near site technology rather than any significant reliance on off-site/off-set allowable solutions.</p> <p>The EnS considers a range of other measures to achieve a Zero Carbon Target:</p> <ol style="list-style-type: none"> 1. Town Centre: Gas CHP plus Allowable Solutions (Type 1) financial contribution for residual emissions 2. Allowable Solution (Type 2): Land based PV array 3. Allowable Solution (Type 2): Medium to Large Scale Wind 4. Allowable Solution (Type 1): Financial contribution 	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
11.2	Does the proposal ensure that buildings and public spaces are designed to winter and summer temperatures, i.e. ventilation, shading and landscaping.	Construction: N/A Early occupation/full build-out: Yes	[HH] It has been outlined that homes will be built to high fabric energy efficiency levels, meaning that that they will be able to endure extreme temperatures. Furthermore the green/blue landscape will be resilient to, and mitigate impacts of climate change whilst opportunities for the provision of shade and shelter, managing water and the incorporation of measures to control the micro-climate within the developed areas.	Positive	[HH] Mitigation and adaptation measures, e.g.: <ul style="list-style-type: none"> • recessed windows, inward opening, • shading, integrated landscape design, • orientation and overshadowing, thermal mass and material choice etc.

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
11.3	Does the proposal maintain or enhance biodiversity?	Construction: N/A Early occupation/ full build-out: Yes	<p>[PS] The proposal includes a number of new biodiversity features, designed to create new habitat for wildlife as well as act as corridors to provide connectivity between these areas and the wider landscape. The attenuation ponds and wider environment in the Water Park to the east of the site have been designed to provide an extensive wetland habitat and maximise biodiversity value.</p> <p>Throughout Phase 2, extensive planting, including native broad-leaved woodland, orchards, shrub and hedgerows, will be implemented to integrate the scheme into the character of the surrounding landscape.</p> <p>It is the intention to maximise biodiversity more generally within the built development. Green roofs are proposed as an option on the public buildings, and bat and bird boxes could be installed onto buildings and/or the fabric of building walls. Mammal tunnels and other means of crossing severed routes will allow biodiversity networks to be retained</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
11.4	Does the proposal incorporate urban drainage techniques?	Construction: N/A Early occupation/ full build-out: Yes	<p>[PS] A comprehensive SuDS strategy is included as part of the proposals, which combined with landscaping features provide an enhanced environment without increasing the rate of surface water run-off from the developed site.</p> <p>These SuDS facilities will be provided for the whole development site and locally within each development parcel. The proposed development will make use of open swales to convey water from the town to the Water Park to the east. The attenuation ponds will store water before being slowly released, and are able to attenuate for a 1 in 200 year event, plus the forecast effects of climate change.</p> <p>In addition to the rates of discharge other SuDS methods such as permeable paving, filter drains and green roofs will help to improve the water quality of the surface water run-off before it exits the site.</p> <p>Opportunities have been taken to use the drainage strategy to create amenity,</p>	Positive	

	Assessment criteria	Relevant Phase ⁵	Details/evidence ⁶	Potential health impact ⁷	Initial considerations for the design team and further recommendations
			enhance biodiversity and contribute to a network of green and blue open space.		